DOCUMENT RESUME

ED 240 283 CE 038 107

AUTHOR	Pratzner, Frank C.; Russell, Jill Frymier
TITLE	The Changing Workplace: Implications of Quality of Work Life Developments for Vocational Education. Research and Development Series No. 249.
INSTITUTION	Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE	Jan 84
CONTRACT	300-83-0016
NOTE	94p.
AVAILABLE FROM	National Center Publications, National Center for Research in Vocational Education, 1960 Kenny Road, Columbus, OH 43210 (RD249--$7.25).
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	*Educational Change; *Educational Needs; Educational Philosophy; *Futures (of Society); Human Factors Engineering; Job Enrichment; Secondary Education; *Vocational Education; *Work Attitudes; *Work Environment
IDENTIFIERS	*Quality of Working Life

ABSTRACT

Based upon a review of literature and on-site interviews and observations at nine firms that are recognized leaders in the development and implementation of quality of work life (QWL) activities, this report examines implications of QWL developments for future skill requirements and their potential consequences for public vocational education policies and programs. The report is not a handbook or a guide for changing current practices but is intended to provide background information to familiarize vocational educators with QWL developments in the workplace. The report focuses on two major sets of educational implications. First, it discusses the implications of QWL developments for the content and instructional processes of vocational education. It suggests that to function effectively on high-involvement participative work settings, workers and managers not only need good basic skills and technical job skills, but they will also increasingly need improved skills and knowledge in group problem solving and in the organization and management of production. The report discusses examples of skills and knowledge in these two broad areas and examines why they are needed in business and industry. The second major focus of the report examines what new participative management techniques may do to improve the nation's schools, especially the management and organization of vocational education. The report discusses how QWL practices in industry must transfer to a better way of learning and a new high-involvement participative approach to schooling. Appendixes to the report contain a list of skills applicable in participative work settings and summaries of the site visits to the nine companies studied. (KC)

Research and Development Series No. 249

ED240283

THE CHANGING WORKPLACE: IMPLICATIONS OF QUALITY OF WORK LIFE DEVELOPMENTS FOR VOCATIONAL EDUCATION

Frank C. Pratzner
Jill Frymier Russell

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

- [x] This document has been reproduced as received from the person or organization originating it.
- [ ] Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

CE038107

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

January 1984

THE NATIONAL CENTER MISSION STATEMENT

The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Providing information for national planning and policy
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

For further information contact:

Program Information Office
National Center for Research
in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

Telephone: (614) 486-3655 or (800) 848-4815
Cable: CTVOCEDOSU/Columbus, Ohio
Telex: 8104821894

FUNDING INFORMATION

Project Title: National Center for Research in Vocational Education, Applied Research and Development Function

Contract Number: 300830016

Project Number: 051MH30001

Act under Which Funds Administered: Education Amendments of 1976, P.L. 94-482

Source of Contract: Office of Vocational and Adult Education
U.S. Department of Education
Washington, DC 20202

Contractor: The National Center for Research in Vocational Education
The Ohio State University
Columbus, Ohio 43210

Executive Director: Robert E. Taylor

Disclaimer: This publication was prepared pursuant to a contract with the Office of Vocational and Adult Education, U.S. Department of Education. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgement in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official U.S. Department of Education position or policy.

Discrimination Prohibited: Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title IX of the Education Amendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Therefore, the National Center for Research in Vocational Education Project, like every program or activity receiving financial assistance from the U.S. Department of Education must be operated in compliance with these laws.

CONTENTS

Page

LIST OF TABLES v

LIST OF FIGURES vii

FOREWORD ix

EXECUTIVE SUMMARY xi

CHAPTER 1. INTRODUCTION 1

CHAPTER 2. QUALITY OF WORK LIFE: AN OVERVIEW 3

CHAPTER 3. IDEOLOGICAL AND PRACTICAL SUPPORT 9

- Ideological Support 9
- Practical Considerations 12
  - The Changing Structure of American Industry 13
  - The Changing Work Force 16

CHAPTER 4. IMPLICATIONS OF QWL FOR EDUCATION AND TRAINING 21

- Implications of QWL for Instructional Content and Processes 21
  - Group Problem Solving Skills 25
  - Organizational and Management Skills 29
  - Conclusions 31
- Implications of QWL for the Organization and Management of Effective Schools 33
  - The Current Paradigm of Schooling 34
  - The Effective Schools Paradigm 36
  - Conclusions 38

Page

APPENDIX A. EXAMPLES OF BROADLY APPLICABLE SKILLS USEFUL IN HIGH-INVOLVEMENT, PARTICIPATIVE WORK SETTINGS 45

APPENDIX B. SUMMARIES OF SITE VISITS TO FIRMS 55

REFERENCES 85

LIST OF TABLES

Page

TABLE 1. WHY QWL PROGRAMS WERE INITIATED 5

TABLE 2. TEN QWL ACTIVITIES WITH THE HIGHEST PERCENTAGES OF "VERY SUCCESSFUL" RATINGS FOR PRODUCTIVITY IMPROVEMENT 5

TABLE 3. HOW COMPANIES EVALUATE THEIR HUMAN RESOURCE PRODUCTIVITY PROGRAM TO DATE 6

TABLE 4. MANAGEMENT'S ATTITUDE TOWARD PARTICIPATIVE MANAGEMENT 6

TABLE 5. FREQUENCY OF EXPERIMENTS SHOWING POSITIVE EFFECTS BY TYPE OF PRODUCTIVITY PROGRAM AND OUTCOME MEASURE 6

TABLE 6. LEVEL OF SCHOOL COMPLETED BY PERSONS OVER AGE TWENTY-FIVE: UNITED STATES, 1910 to 1970 17

LIST OF FIGURES

Page

Figure 1. Summary of Several QWL Characteristics and Techniques 4

Figure 2. Comparisons of the QWL and Current Paradigm of Work 11

Figure 3. Indicators of Decline in the Overall Quality of Life in America 14

Figure 4. Skills/Knowledge/Attitudes Needed for Working in Work-Improved Organizations 23

Figure 5. Components of the Emerging Paradigms of Working and Schooling 35

Figure 6. Dimensions of Effective Schooling 37

Figure 7. Descriptions Illustrative of the Interrelatedness of QWL and Effective Schools Characteristics 40

Figure 8. Similarities in Indices of Productivity and School Effectiveness 41

FOREWORD

Today's popular media and professional literature are full of discussions of the so-called technological revolution and the ways it is changing the American workplace. But another set of changes—in the quality of work life (QWL)--is potentially at least as profound in its consequences for both work and schooling. QWL developments and participative managment approaches are democratizing the workplace and involving workers in more decisions that affect their work, through the use of quality circles, problem-solving task forces, production teams, group incentive plans, job redesign, and a variety of other approaches and techniques. By channeling workers' previously untapped knowledge and expertise into cooperative diagnosis and problem solving, these approaches boost productivity, reduce costs, improve the quality of goods and services, and improve the quality of work life.

But what do these QWL developments mean in terms of the future skill requirements that workers will need and that public vocational education programs will be expected to impart to students? This project examines the implications of QWL developments for vocational education programs and policies. The report summarizes key aspects and characteristics of QWL developments, discusses their potential implications for instructional content and processes, and speculates on potential application of QWL approaches for the organization and management of vocational education itself. The report is not a handbook or how-to guide, but is intended to provide background information and stimulate ideas and dialogue among secondary and postsecondary vocational education policymakers, administrators, program developers, curriculum specialists, and instructors at local, state, and national levels. Hopefully, this will lead to additional research and development and to greater clarification and understanding of the potential consequences of QWL developments for vocational education policy and practice.

The National Center is deeply indebted to the many workers and employers in the firms we visited for their generous donation of time and insights to the study. We greatly appreciate the invaluable help of the advisory panel and wish to thank Neal Herrick of Herrick Associates; William Horner private consultant; Greg Oldham of the University of Illinois; Rebecca L. Smith of the Hewlett Packard Company; Robert Schwarz of Honeywell, Inc.; and Arthur Wirth of Washington University for their help and support throughout the study. We are also especially grateful to Jacqueline Davenport, of the American Center for the Quality of Work Life; Don Gentry of Purdue University; Joan McFadden of Utah State University; and Richard Miguel and Jane Reisman, of the National Center for Research in Vocational Education for their review and helpful comments on an earlier draft of the report. We wish to thank the U.S. Department of Education, Office of Vocational and Adult Education for its support of the project. This project was conducted in the Evaluation and Policy Division of the National Center under the direction of N. L. McCaslin, Associate Director.

Finally, we wish to thank the authors, Frank C. Pratzner and Jill Frymier Russell, for their conduct of the study and preparation of the report; Jeannette Fraser and Pat Fornash, for their assistance in the conduct of the project; Deborah Anthony for her help in typing and preparing the final document; and Constance Faddis, for editorial review of the final copy.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

Based upon a review of recent literature and research, and on site interviews and observations at nine firms that are recognized leaders in the development and implementation of quality of work life (QWL) activities, the report examines implications of QWL developments for future skill requirements and their potential consequences for public vocational education policies and programs. The report is not a handbook or a guide for changing current practices but is intended to provide background information to familiarize vocational educators with QWL developments in the workplace. Hopefully, this will stimulate further examination and lead to greater understanding of the educational implications of QWL developments by vocational education policymakers, administrators, program developers, curriculum specialists, and instructional personnel.

Quality of work life activities are ways of structuring jobs and organizing work. They typically have the dual focus of improving the economic viability of an organization and of making work a more satisfying and rewarding experience for workers and managers. The traditional paradigm of work, which often results in employees being treated as unthinking and uncaring parts of the production process, is incompatible with democratic ideals. Equally important, it results in worker underuse and in worker dissatisfaction, both of which contribute to lower-quality goods and services and lower productivity. New approaches to improved quality of work life and participative management of businesses are solving problems of underemployment and underutilization of human resources.

The emerging QWL paradigm reflects an alternative philosophy and approach for managing and organizing work, one that is compatible with and supported by a broader societal shift to greater democratization of all of our institutions—our families, government, offices, and factories. QWL developments are further supported by the need to shift production from high-volume, standardized production, to flexible-system production. Flexible-system production, characterized by close working relationships between labor and management and an emphasis on team work instead of hierarchy, is required to gain competitive advantage in the global economy, because traditional technocratic bureaucracies are not designed to cope effectively with problems and opportunities that cannot be anticipated in advance.

Both demographic and attitudinal changes in the work force support the continued development and expansion of QWL activities. The decline in labor force growth, peoples' search for self-fulfillment, increased levels of education, increased numbers of two wage earner households with fewer children, and the move toward more permanent part-time work are among developments supporting employer flexibility in meeting the needs of employees.

The report focuses on two major sets of educational implications. First, it discusses the implications of QWL developments for the content and instructional processes of vocational education. It suggests that to function effectively in high-involvement, participative work settings, workers and managers not only need good basic skills and technical job skills, but they will also increasingly need improved skills and knowledge in group problem solving (e.g., in such areas as interpersonal and group process skills, problem solving and decision making, planning, and communication), and in the organization and management of production (e.g., in such areas as

business economics, business operation, statistical quality control, and QWL developments). The report discusses examples of skills and knowledge in these two broad areas and examines why they are needed in business and industry.

The report coins the expression *sociotechnical literacy* to characterize the goal of an educational program focused on development of this combination of skills and knowledge. Sociotechnical literacy addresses both the human and technical dimensions of work and their interaction and is required by professional and nonprofessional jobs alike. It is more consistent with major workplace innovations and requirements than the more popular notion of technological literacy, which focuses almost exclusively on the technological dimension of work.

Vocational education that aims to develop these higher-order skills and knowledge, needs to be broader than much of vocational education in its traditional sense and meaning. It also should be available and accessible to all students, regardless of their future educational and occupational aspirations. Development of these broader, nontechnical work skills requires "application" and practice, as well as an understanding of the philosophical rationale behind them. Such skills as working effectively in groups, problem solving, and decision making are not developed effectively in the abstract through lecture and discussion. They are best learned through realistic, hands-on experience and practical application, which is the kind of teaching that has characterized vocational education.

The unique process of vocational education must be strengthened and adapted to the emerging skill requirements of the workplace. Vocational education must seek more ways to use cooperative learning procedures and to provide relevant and realistic opportunities for students to practice the skills, knowledge, and personal characteristics required by participative work settings.

The second major focus of the report examines what new participative management techniques may do to improve the nation's schools, especially the management and organization of vocational education. A whole technology exists for participative management, complete with a vast and growing literature and detailed training programs, and has already proven useful in business and industry. Now it is up to business people and educators, working together, to transfer this technology from the private sector to new uses in the public educational sector.

The many successes of participative management demonstrate that, even in the "hard-nosed, hard-headed" business world, humanism and democracy are not the antithesis of effectiveness. Workplaces can be both effective and humane. The same is true of schools; they, too, can be humane and effective workplaces. When viewed from the participative management perspective, the "effectiveness" of schools means more than simply raising student scores on national standardized achievement tests—it means both a better way of learning and a new, high-involvement, participative approach to schooling.

If educators can learn anything from the participative management philosophy and approach, it is that institutional and individual improvement are inextricably linked. Those who are closest to the work that needs to be performed—students and teachers—are also the most knowledgeable of how improvements may be made. Students and teachers must become more effectively involved in their own personal improvement and in school improvement.

Given these facts—the growth and success of high involvement, participative work settings; heavy reliance of much of current schooling on interpersonal competition and individualistic work rather than cooperative learning; renewed emphasis on increased school discipline and authoritarianism; and our current dissatisfaction with school achievement—we need to

considerably increase high-involvement, participative approaches to schooling. Improved involvement of learners in the process of their own learning is not only a "means" of achieving more effective schools, it is the "end" of schooling as well.

CHAPTER 1

INTRODUCTION

Quality of work life (QWL) is a label most often used to refer to an emerging paradigm for work. The QWL paradigm embodies a philosophy, a set of values and models, and a multitude of practices and techniques for understanding, explaining, and affecting how work is organized and carried out.*

The purpose of this project was to examine quality of work life developments in the American workplace in order to identify what, if any, implications they have for vocational education. This was accomplished primarily through literature reviews. Recent literature and research was examined to identify the effects of QWL developments on the skill and training requirements of employees, and to draw out of these reports potential implications for future skill and training needs that might be addressed by vocational education. A major question of interest to the project was whether the skills required by various QWL developments were unique to individual firms and to specific QWL activities, or whether they were generic in nature—i.e., whether the same skills and knowledge were required by different QWL activities and whether they were useful in different industries and firms.

Initial insights and implications identified through the review of literature and research were discussed and further refined by a panel of six experts in QWL developments. With the help of the panel, a list of firms that were leaders in the implementation of QWL activities was identified. Interviews and observations were then conducted at nine selected firms to verify and further clarify potential implications of QWL developments for vocational education.

The firms visited represented a broad cross-section of business and industry. Firms both in the manufacturing and service sectors were included. Three of the manufacturing firms were in the automotive industry. Two were high-technology firms in the electronic instrument and computer industries, and two were highly diversified manufacturing enterprises. One firm represented the insurance industry, and one was a non-profit hospital. Five of the firms were unionized; four were not. The nine firms ranged in size from four hundred to seven hundred and thirty thousand employees.

Jobs within each of the firms varied widely from managerial, professional, and technical to unskilled jobs. Project interviews and observations concentrated on those parts of the firms and on jobs that did not require high level of specialized training and that often employed youths with high school education.

---

*According to Tuthill and Ashton (1983), "a scientific paradigm is a theoretical framework, or a way of perceiving and understanding the world, that a group of scientists has adopted as their world view" (p. 7). It is the means by which groups of scientists "collectively make sense of their scientific world" (ibid). Mohrman and Lawler (1981) and Trist (1981) show that the QWL movement meets the requirements of a scientific paradigm. Mohrman and Lawler further argue that, in regard to the organization of work, we are in the final stages of a major shift to the QWL paradigm.

The study found that QWL developments are having profound and lasting effects on the way the nation organizes itself for production. These effects and changes appear to have significant implications for education and, in particular, for vocational education.

The study also found that parallel and significant changes are being proposed for the way the nation organizes itself to provide education. These developments in work and in education seem to be interrelated—not isolated or independent developments.

Chapter 2 provides a brief background and overview of quality of work life developments, points out several key characteristics of QWL, and highlights some recent findings about its pervasiveness and effects. Chapter 3 summarizes ideological and practical necessities that have given rise to and support quality of work life developments. Chapter 4 is the major focus of the report, and identifies and discusses important implications of QWL developments for the content, instructional processes, and organization and management of effective schools and vocational education programs.

Appendix A includes examples of competencies needed to work in high-involvement companies. Appendix B provides brief summaries of our visits to nine firms, that are recognized widely as leaders in the implementation of QWL activities. These summaries highlight the sites' major QWL activities and capture some of the sentiments and ideas of the workers about QWL developments and their implications for education and training.

CHAPTER 2

QUALITY OF WORK LIFE: AN OVERVIEW

Quality of work life activities are ways of structuring jobs and organizing work that typically have the dual focus of (1) improving the economic viability of an organization and (2) making work a more satisfying and rewarding experience for workers and managers. Figure 1 briefly summarizes several major QWL characteristics and techniques. As Goodman (1979) points out, "The focus is not on improving either the productivity dimensions or the psychological outcomes of work, but rather on jointly improving both of these outcomes" (p. 8). Goodman further notes that QWL activities usually attempt to "restructure multiple aspects of an organization simultaneously, such as the authority, decision making, reward, and communication systems, rather than any one dimension." The purpose of these multidimensional changes is generally "to provide greater democratization of the workplace, greater control for the worker over his or her environment, and greater joint problem-solving between labor and management" (ibid).

The changes occurring in work and referred to here as "quality of work life developments" appear in workplaces in many guises—"high-involvement, participative management," "workplace democracy," "humanization of work," "democratic sociotechnical design of work." Some of these terms may carry special meanings and connotations for the specialists and professionals who use them, and there is little apparent agreement among these specialists on a common set of definitions. Nevertheless, their underlying principles and techniques do not appear to be very different; they all focus on improving human well-being and organizational effectiveness. As Herrick (1981) sees it:

> The end of any alterations in working arrangements is to increase human well-being. Human well-being is the experiencing of intellectual, emotional, and physical pleasures through one's own efforts. The same policies which contribute to human well-being are also those most consistent with human, organizational, and political effectiveness. (p. 631)

Nadler and Lawler (1983) trace the historical development of the QWL movement and its evolving definitions, and provide a concise working definition:

> Quality of work life is a way of thinking about people, work, and organizations. Its distinctive elements are (1) a concern about the impact of work on people as well as on organizational effectiveness, and (2) the idea of participation in organizational problem solving and decision making. (p.26)

Mills (1978), former director of the American Center for the Quality of Work Life, has defined QWL as:

> A way to provide people at work (managers, supervisors, rank and file workers) with structured opportunities to become actively involved in a new interpersonal process of problem-solving toward a better way of working and a more effective work organization,

Job Redesign/Rotation/Enrichment/Enlargement: The change of tasks and responsibilities for an individual position such that the work is more satisfying or productive. Job redesign emphasizes a comprehensive effort to provide the job holder with variety, autonomy, feedback, a sense of purpose, and the chance to see a product or service from beginning to end. Job rotation involves switching on a regular basis to a different job within the same organization. Job enrichment is an effort to make a position more interesting or challenging to the job holder. Job enlargement means giving additional tasks or additional work to one job holder.

Sociotechnical Design: An organizational approach whereby an appreciation of the interactions between technology, organization, and job structures is taken into account for the purpose of attaining the best match between people, practices, and machines.

Participative Management: A sharing of influence or control among management and employees; an effort on the part of decision makers to gain information from employees so as to make a better decision, and in some cases to actually facilitate participation of employees in formulating decisions. The decision involvement might be on issues concerning the employee's specific job, or it might include organizationwide decisions.

Workplace Democracy: The implementation of democratic ideals and practices in organizational philosophy and policy; including such concepts as shared information for egalitarian decision making, due process, and free-speech (the right to disagree with management). In some cases workers own the firm.

Quality Circles: A communication technique in which a group of workers who have similar concerns meet together regularly to identify, analyze, and solve problems relating to their work. The ultimate goal is usually to improve morale as well as quality and productivity.

Team Building: A management style which entails facilitation and development of communication, coordination, camraderie among a group of workers. These workers often have responsibility as a group for a final product or service from beginning to end.

Flat, Lean Organizational Structure: An organizational hierarchy which has fewer levels between the chief executive officer and workers than in traditional businesses. A company with a flat organizational structure has a lower ratio of management to non-management staff and may require fewer supervisors. A flat structure is possible when management decision-making is shared with the workers who actually develop the firm's product or services. It facilitates communications internally and with customers and others outside the firm.

Flexible Benefits: Most employees receive some benefits as a part of their employment package. These may include insurance, sick leave, paid vacation, and a pension program. Flexible benefits programs allow individual employees to select that combination of benefits (up to a certain dollar value and perhaps with other limitations) which is best matched to his or her lifestyle and needs.

Flextime/Job-sharing: Flexibility and job-sharing are examples of ways in which companies can make work easier for employees but not necessarily less productive. Flexibility of work hours—when one arrives and leaves the workplace—and whether one is a part time or full time employee varies from company to company. Some firms have policies which permit very little variation, while others provide considerable variation, for example four-day, 10-hour workweeks, or programs where two people share one job slot.

Egalitarian Perquisites: Traditionally, as employees advanced upward through the tairs of hierarchy in an organization they changed job titles, tasks, and pay. At the same time, most companies also awarded less formal benefits such as preferred parking places, keys to the executive washroom, the opportunity to eat lunch in a special dining area. Companies that stress team building, flat organizational structures, and workplace democracy attempt to minimize the differences between workers as far as the less formal benefits are concerned. The goal is for all employees, including management, to feel equally a part of the organization and equally responsible for its productivity. Therefore everyone receives equal treatment in companies with egalitarian perquisites.

Job Audit/Procedures Simplification: A process whereby a single job or procedure within an organization is assessed to determine if it is organized for the most efficient accomplishment. The review process takes into consideration time, effort, and trust. Within organizations which are facilitating team-building, the level of trust is often greater which can mean fewer external checks have to be made at each stage of the work.

Worker Satisfaction: The feeling that employees have about their work, their co-workers, their company, and their own and the company's performance. For one worker, satisfaction may hinge on salary; for another the possibility for growth or advancement. For most workers satisfaction or dissatisfaction is based on many factors such as the amount of variety in the tasks they perform, a sense of purpose or meaning to their work, an awareness of the results of their work and the effectiveness of their performance, and salary as compared to others doing similar work. Improvement of worker satisfaction is one of the goals of most companies trying to make work improvements.

Cross-skilling/Cross-training: The practice of preparing workers to be able to perform more than one job within their firm. That is, instead of teaching workers to operate one machine and expecting them to operate only that machine until they leave or are promoted, the company trains the worker to operate several different machines, or all of the machines in the plant, so that workers can be interchanged when needed or rotated to increase flexibility and avoid boredom.

Management by Objectives (MBO): The process of establishing goals and objectives for each level of an organization. Daily activities are then designed to work toward achievement of the designated objectives and performance is measured against achievement of the objectives. In some cases the objectives are jointly established between supervisors and workers. Often attaining concensus about goals and objectives is a critical accomplishment in itself.

Parallel Hierarchy: A structure within an organization which entails development of a shadow-box at each level of the hierarchy. This shadow-box hierarchy then parallels the regular hierarchy of the company. The shadow-box is composed of elected representatives from one unit of workers who meet together with their supervisor on a regular basis to advise him or her on long-range planning issues. They can suggest changes to management and, in essence, represent an opportunity for employees to participate in decision-making.

Incentive Plan: Arrangements whereby all employees receive a share of the firm's profits (when attained) in addition to their regular pay. Details differ under various plans such as the Scanlon Plan and Impro Share Plan. The plans involve teaching employees about the company's costs to produce their product and involving them in lowering costs and increasing productivity.

Statistical Quality Control: A process designed to improve product and process quality in an organization. It entails the collection, charting, and examination of data (over time) on factors such as waste, defects, and units produced. Data collection and analysis often are done by workers so that they have feedback about their group's performance and have a chance to improve it.

Figure 1. Summary of several QWL characteristics and techniques

the payoff from which includes the best interests of employees and employers in equal measure. (p. 23)

The most important aspect of the QWL approach is the establishment of new cooperative diagnostic and problem-solving bodies with, as Mills stresses, "*the authority to make things happen*" (ibid., p. 35). Such bodies are called by a variety of names—quality circles, QWL committees, problem-solving task forces. What is important about them is their purpose and underlying rationale.

As Mills points out, these bodies or structures provide "the opportunity for people to seek together to identify barriers to the effectiveness of their work organization, or their part of it, and through problem-solving, tumble these barriers down" (ibid). They are based on the conviction, by all involved, that "there's a wealth of largely untapped creative expertise and insight in the organization which the old, rigid, stable structure and organization charts have kept hidden" (ibid). These problem-solving and decision-making bodies are organized ways of channeling that latent expertise and putting it to work in the interest of the workers and the organization.

The New York Stock Exchange (1982) estimates that about 13 million workers are currently included in a variety of QWL and productivity improvement programs (p. 23).* The Exchange has collected survey data showing that the most rapidly growing programs over the past two years have been quality circles, restructuring plant and office space, job redesign, task forces, group incentive plans, and production teams (p. 26).

Among the reasons that corporations initiate QWL programs are to cut costs, to improve poor employee attitudes and morale, to improve productivity and product quality, and to reduce worker turnover (see table 1). Other reasons include positive reports from other corporations and a change in management philosophy. Some management and union advocates of QWL emphasize improvement of quality of work life as a goal in itself to be sought as long as productivity is not adversely affected. But many specialists agree with Walton (1979) that "projects with productivity and QWL as goals are more likely to succeed on both counts than projects that stress one goal to the exclusion of the other" (p. 88).

TABLE 1

WHY PROGRAMS WERE INITIATED
(Corporations with 500 or more employees)

Reasons	Percent of All Corporations
Cut Costs	58%
Poor Employee Attitudes/Low Morale	46
Positive Reports from Other Corporations	40
Productivity Improvement	38
Change in Management Philosophy	36
Poor Product Quality	24
High Turnover	20
High Absenteeism	19
Poor Service	17
High Overtime	12
Lateness	10
Union Grievances	8

SOURCE: New York Stock Exchange 1982, p. 24. Reprinted by permission.

TABLE 2

TEN ACTIVITIES WITH THE HIGHEST PERCENTAGES OF "VERY SUCCESSFUL" RATINGS FOR PRODUCTIVITY IMPROVEMENT
(Corporations with 500 or more employees)

	Percent of All Corporations
Personalized Hours	44%
Setting Company Objectives	40
Formal Training	37
Task Forces	34
Structuring Plant & Office Space	33
Production Teams	32
Setting Employee Goals	32
Scheduling Work Flow	29
Quality Circles	28
Employee Appraisal and Feedback	28

SOURCE: New York Stock Exchange 1982, p. 28. Reprinted by permission.

*William Horner, a well-known, long-time consultant to labor and management on QWL developments, defines QWL activities less broadly than the New York Stock Exchange and estimates that approximately 2 million organized workers and about 7 million nonorganized workers may be actively engaged in QWL and productivity improvement programs.

More than half of all corporations surveyed by the Exchange considered their programs successful or highly successful (see tables 2 and 3). A large majority thought that participative management techniques represented a promising new approach rather than a passing fad (see table 4).

TABLE 3

HOW COMPANIES EVALUATE THEIR HUMAN RESOURCE PRODUCTIVITY PROGRAM TO DATE
(Corporations with 500 or more employees)

	Percent of All Corporations
Highly Successful	12%
Successful	42
Partially Successful	24
Unsuccessful	0
Too Many to Evaluate	20
No Answer	2
	100%

SOURCE: New York Stock Exchange 1982, p. 29. Reprinted by permission.

TABLE 4

MANAGEMENT'S ATTITUDE TOWARD PARTICIPATIVE MANAGEMENT
(Corporations with 500 or more employees)

Participative Management is:	A Fad Destined to Disappear	A Promising New Approach
All Corporations with 500 or More Employees	3%	82%
Manufacturing Corporations	4	83%
NYSE-Listed Corporations	3	77

SOURCE: New York Stock Exchange 1982, p. 27. Reprinted by permission.

Katzell and Guzzo (1983) reviewed 207 recently published field experiments that used one or more of eleven psychological approaches to improving employee productivity (see table 5). They report that "87 percent of all these experiments resulted in improvement in at least one concrete measure of productivity" (p. 468).

TABLE 5

FREQUENCY OF EXPERIMENTS SHOWING POSITIVE EFFECTS BY TYPE OF PRODUCTIVITY PROGRAM AND OUTCOME MEASURE

	Outcome measure*							
	Output		Withdrawal		Disruption		Attitudes	
Program	n	%	n	%	n	%	n	%
Recruitment and selection	0/0		3/6	50	0/0		1/1	100
Training and instruction	46/50	92	12/17	71	4/5	80	7/9	78
Appraisal and feedback	26/28	93	6/10	60	4/5	80	4/6	67
Goal setting	21/22	95	6/9	67	4/5	80	7/10	70
Financial compensation	18/20	90	7/9	78	0/0		3/4	75
Work redesign	22/25	88	8/10	80	3/3	100	7/10	70
Supervisory methods	23/25	92	11/12	92	1/1	100	7/7	100
Organization structure	6/6	100	1/1	100	1/1	100	0/0	
Decision-making techniques	4/4	100	0/0		0/0		0/2	0
Work schedules	11/18	61	8/11	73	1/1	100	7/9	78
Sociotechnical systems redesign	18/19	95	7/10	70	5/6	83	9/9	100

*Total experiments equal 207. Denominators show the number of experiments studying effects on type of outcome measure: numerators show number of those experiments reporting at least one positive effect. In some experiments more than one type of program and more than one type of outcome measure were studied.

SOURCE: Katzell & Guzzo 1983, p. 469. Copyrighted 1983 by the American Psychological Association. Reprinted by permission of the authors.

Several of the concepts and characteristics of the QWL movement touched on briefly in this chapter are discussed further in subsequent chapters. However, the reader interested in an indepth examination and analysis of the QWL movement has a number of excellent sources from which to choose. Among the best is *The Innovative Organization*, (1982) edited by Zager and Rosow (1982), which provides an excellent compendium of case studies of QWL developments. Another excellent reference is Davis and Chern's (1975) *The Quality of Working Life*. Volume I provides a comprehensive and authoritative review and analysis of the state of the art, problems, and prospects of the QWL movement. Volume II provides another excellent set of QWL case studies and commentary. Complete bibliographic information for these documents is included in the reference section at the end of this report.

CHAPTER 3

IDEOLOGICAL AND PRACTICAL SUPPORT

The QWL movement appears to be an integral part of a broader movement in American society—a set of individual and social transformations moving toward greater democratization of all our institutions and greater responsibility and participation of individuals in decisions affecting their lives. On the other hand, the QWL movement is also responsive to and supported by a set of practical developments related to changes in the way the nation organizes itself for production, as well as changes in the nature and characteristics of the work force.

Stein (1983) has shown that all of the present innovations in quality of work life are actually old, sometimes astonishingly so. "What is *new*," he contends, "is the context, and therefore the extent to which these ideas can be applied." History, he points out, "is full of examples of powerful ideas rediscovered when conditions were right" (p. 23).

Ideological Support

Many social and political scientists believe the nation is now in the midst of a major social revolution—a nonviolent one aimed at reaffirmation of the democratic experiment the founding fathers began a little over two hundred years ago. They see the nation striving toward a higher quality of life through fuller implementation of the ideology and practice of democracy—democratization not only of our political institutions, but also of our social institutions, our families, offices, and factories.

Ferguson (1980) sees the shift to greater democratization as a distinctly new way of understanding and explaining reality and of thinking about old problems: "Roles, relationships, institutions, and old ideas are being reexamined, reformulated, redesigned. We have begun to image the possible society" (p. 29). This new view promotes the autonomous individual in a decentralized society. As Ferguson points out:

> "It sees us as stewards of all our resources, inner and outer. It says that we are not victims, not pawns, not limited by conditions or conditioning. Heirs to evolutionary riches, we are capable of imagination, invention, and experience we have only glimpsed. (Ibid)

In their recent book, *A New Social Contract*, Carnoy, Shearer, and Rumberger (1983) contend that the assumption that the economic system in the United States is self-governing is "palpably false" and that "an alternative must integrate economics and politics on a new basis—a democratic, participative governance of polity and economy" (p. 2). They call this alternative "economic democracy" and think it will work because "it is rooted in the basic American ideals of participation, fairness, and efficiency" (p. 4).

Carnoy et al. further state that the cornerstones of economic democracy "are direct and individual public accountability for investment policy and increased worker and consumer control of production—what and how things are produced" (ibid., p. 3) They argue that greater, not less democratic participation is required "at the community level, at the plant level, at the level of national economic policy" (ibid). In addition:

> Greater democracy means that those with jobs will have much more to say about the way those jobs are organized; those who live in communities will have more to say about what happens to those communities . . . consumers will have more to say about the products they buy and the kinds of long-run investments the economy should make; senior citizens will have more to say about their activities and health care; *students will participate more in their education* [emphasis added]; and all citizens can decide together whether the human race should be destroyed by nuclear war or survive in a saner world. (Ibid., p. 2).

As Naisbitt (1982) sees it, one of the ten "megatrends" shaping our lives is the shift from representative democracy to participative democracy. According to him, the guiding principle of participatory democracy is that people must be part of the process of arriving at decisions that affect their lives. His wide ranging examples and analyses provide convincing arguments that:

> The ethic of participation is spreading bottom up across America and radically altering the way we think people in institutions should be governed. Citizens, workers, and consumers are demanding and getting a greater voice in government, business and the marketplace. (p. 159)

Many of the component beliefs, values, and practices of the QWL paradigm are shown in figure 2. Figure 2 contrasts the QWL paradigm with the current, dominant paradigm of work and highlights many of the critical distinctions between them.

Most Americans today expect workplaces to be compatible with a free and open political system. "The spirit of our age . . . is characterized by fluid organizations reluctant to create hierarchical structures, averse to dogma" (Ferguson 1980, p. 18). A report of the Work in America Institute (1982) recounts that Americans do not oppose the legitimate exercise of authority, but they do resent "authoritarianism." It points out that:

> there has been a marked and persistent shift in the attitudes of younger workers, which is now spreading to the work force as a whole. The work ethic—a basic belief in the value of work—has not diminished, but many workers feel that there is an incongruity between more flexible modes of life and expression in the outside community and the authoritative, technocratically controlled workplace. They do not oppose the legitimate exercise of authority, but they do resent "authoritarianism," a distinction that is crucial to worker-manager relations and national productivity.
>
> Since Americans live in a free and open political system, they expect conditions in the workplace to be compatible with the society. Their proper expectations include the right to free speech, privacy, dissent, fair and equitable treatment, and due process in work-related activities.
>
> A majority of all Americans today believe that they have a right to take part in decisions affecting their jobs. (p. 3-4)*

*©1982 by Work in America Institute. Reprinted by permission.

Components of a Paradigm	Working	
	Current Paradigm	Emerging Quality of Work Life Paradigm
An Image of the Subject Matter	• Separation of production functions • Worker as disinterested, unthinking component of production process	• The human being and his or her welfare • Integration of individual and organization • Productivity plus QWL
Beliefs in Particular Theories and Models	• Scientific management/ Taylorism • Automation • Standardization, high-volume production, economies of scale • Hierarchical/authoritarian organizations	• Sociotechnical systems • Theory Z • Industrial democracy • Participative management • Union/management cooperation
Values	• Employees as components of production • Wages/tenure/seniority • Control-oriented • Unilateral/directing/ controlling • Efficiency/rationality/ objectivity	• Humanistic belief in worth of individual • Importance of individual needs • Employee rights/due process
Methods and Instruments	• Hierarchical bureaucracies • Adversarial labor/mgmt. relations • Collective bargaining • Fractionalization/routinization of jobs • Time and motion studies	• Autonomous work teams • Quality circles • Gainsharing plans • Job redesign/work restructuring • Union/management committees
Exemplars	• Large, high-volume automated industries • Theory X corporations	• Volvo, Sweden; General Foods, Topeka; GM, Tarrytown; Japan; Hawthorne studies
Social Matrices	• Chambers of Commerce, National Alliance of Business, *Fortune* and *Business Week* magazines, Nat'l Assoc. of Manuf.	• American Center for QWL; Ontario Quality of Work Life Centre; Michigan Center for QWL; Work in America Institute; conferences; networking

NOTE: Many of these points, as well as the designation of the six components of a paradigm, are abstracted from Mohrman and Lawler (1981).

Figure 2. Comparisons of the QWL and current paradigm of work

Mills (1978) reminds us that most of the old authoritarian values that underlie the current paradigm of work originated at the turn of the century. He notes that Frederick Taylor, often referred to as the father of current "scientific management," urged

> dividing human and machine labor down into the smallest and easiest functions: to create dumb, foolproof jobs for dumb human beings, whom he characterized as essentially lazy, greedy, and demanding of discipline. (Ibid., p. 25)

Among the reasons why scientific management may have been so popular, supported, and perpetuated throughout American industry was the reality that, at the turn of the century, the majority of unskilled and semiskilled workers were immigrants to the United States and could speak little or no English. Rebecca Smith, senior personnel representative in the manufacturing productivity division of Hewlett Packard, notes that the racism and classism that prevailed during this period enabled managers to ignore the issue of equity in the workplace. Managers did not know and did not learn the workers' languages, and, under these conditions, their most efficient method of maintaining a production facility was to reduce jobs to the minute, mechanistic performance of simple, independent tasks.* As Trist (1981) points out, in a "technocratic bureaucracy, the parts are broken down so that the ultimate elements are as simple and inexpensive as possible, as with the unskilled worker in a narrow job who is cheap to replace and who takes little time to train" (p. 38).

The current paradigm of work, which often results in workers being treated as unthinking and uncaring parts of the production process, may have been a rational paradigm early in the century, but it was then and is now incompatible with our democratic ideals regarding the worth and welfare of individuals. One worker, quoted in a *Los Angeles Times* article on 23 October, 1980, put it this way:

> I'm a somebody in my community. I'm on the board of the PTA. My children treat me with respect. I've even got my own banker who knows my name. But when I get to the job, I'm treated like one of my children.

It is a mistake to think of QWL developments as a passing fad or merely as a collection of gimmicks designed to make workers happier. Rather, the QWL paradigm reflects an alternative philosophy and approach to the management and organization of work, one that is compatible with and supported by a broader societal shift to greater democratization of all of our institutions.

Practical Considerations

As long as American factories and offices were operating relatively efficiently—as they were throughout most of the 1960s and into the early 1970s, when the quality of work life movement was in an early stage of development—there were few compelling incentives to align work practices more closely with democratic ideals. "If it isn't broken, don't fix it" was the rule of the day.

In this "business as usual" environment, the early quality of work life activities aimed primarily at improving worker morale and satisfaction and gave relatively little direct attention to productivity-related concerns. As a result, successes were few and far between. Many early advocates and developers overpromised on the benefits of QWL activities, and their ideological motives and objectives did not persuade hard-nosed business executives worried primarily about

*Rebecca Smith, personal correspondence, 1983.

short-term improvements in the "bottom line." That began to change around 1970, however, when, as Reich (1983) points out, the scientific management era came under serious question in America.

Beginning in the 1970s, the productivity growth rate in the United States began to approach zero. Since then, it has remained around zero and has even been negative (U.S. Department of Labor 1981). By the late 1970s and early 1980s, the set of problems related to this lack of productivity growth—slow economic development, high unemployment, high inflation, lower quality and higher prices for goods and services, and the loss of competitive positions in domestic and international markets—reached crisis proportions (Congressional Budget Office 1981; Huddleston 1982). Other indicators of the decline in the overall quality of life in America, compared to other industrialized nations, are discussed by Magaziner and Reich (1982). Several of these indicators are shown in figure 3.

The Changing Structure of American Industry

Among the root causes of these problems is the fact that America has become part of an increasingly complex and competitive global economy. "By 1980, more than 70 percent of all the goods produced in the United States were actively competing with foreign-made goods" (Reich 1983, p. 44). But as Reich points out, "American producers have not fared well in this new contest" (ibid). Reich's figures indicate that

> since 1963, America's share of the world market has declined in a number of important areas: automobiles, by almost one third; industrial machinery, by 33 percent; agricultural machinery, by 40 percent; telecommunications machinery, by 50 percent; metal-work machinery, by 55 percent. (p. 45)

Reich argues that, whatever the final product, "those parts of its production requiring high-volume machinery and unsophisticated workers can be accomplished more cheaply in developing nations" (ibid). Skilled labor, according to Reich, is the only dimension of production where we can retain an advantage over developing nations. "Technologial innovations can be bought or imitated by anyone. High-volume, standardized-production facilities can be established anywhere. But production processes that depend on skilled labor must stay where the skilled labor is" (p. 47).

"Flexible-system production" is seen by Reich as the reverse of high-volume, standardized production and as the way for America to gain competitive advantage in the global economy.

> Flexible-system production is characterized by technological innovation, precision manufacturing, and customization of products. It demands a new style of management, emphasizing teamwork instead of hierarchy and problem-solving instead of routinization . . . Flexible-system production is rooted in discovering and solving new problems; high-volume, standardized production basically involves routinizing the solutions to old problems. . . . Flexible-system production requires an organization designed for change and adaptability . . . a new productive organization, requiring a different, less rigidly delineated relationship between management and labor . . . no set of "standard operating procedures" locks in routines or compartmentalizes job responsibilities. . . . The work requires high-level skills precisely because the problems and opportunities cannot be anticipated . . .the radical distinctions heretofore drawn between those who plan work and those who execute it is inappropriate. . . . There is no hierarchy to problem-solving: solutions may come from anyone, anywhere . . . nearly everyone in the

- In 1980 the real median family income of Americans decreased by 5.5 percent.
- The total growth of the U.S. national income per employed person was substantially lower than most other industrialized countries over the last 20 years.
- Workers in America stand a far greater chance of becoming unemployed without adequate insurance than do workers in other industrialized nations.
- Most workers in the U.S. can be dismissed from their jobs without notice or reason; other industrialized nations prohibit sudden or arbitrary dismissals.
- Public expenditures for social welfare are low in the U.S. relative to other countries. France, Sweden, Japan, and West Germany spend more on social insurance and welfare benefits as a percent of Gross National Product than the U.S. spends.
- European and Japanese workers have more leisure time than U.S. workers. The average yearly vacation in the U.S. is two and one-half weeks; in European countries, the legal minimum is four weeks of paid vacation.
- The U.S. ranks poorly in life expectancy and infant mortality, indicators of public health. The U.S. dropped from fifth place in infant mortality in 1950 to eighteenth place in 1977; most developed countries and even a few underdeveloped ones surpassed it.
- Alone of all industrialized countries, the U.S. lacks a national health insurance system.
- Levels of pollutant emissions into the air are higher in the U.S. than in many other advanced industrial countries.
- Fear of crime is pervasive in the U.S. A U.S. citizen is over two and one-half times more likely to be killed by another person than is a resident of Finland, which has the second highest murder rate among advanced industrial countries.
- The U.S. has a relatively inequitable distribution of income. The lowest 10 percent of families in Japan, West Germany, and the Netherlands receive about double the share of national income received by the bottom 10 percent in the U.S.

SOURCE: From *Minding America's Business* by Ira Magaziner and Robert Reich (pp. 11-27). Copyright 1982 by Law and Business, Inc./Harcourt, Brace, Jovanovich. Reprinted by permission.

Figure 3. Indicators of decline in the overall quality of life in America

> production process is responsible for recognizing problems and finding solutions. . . . When production is inherently non-routine, problem-solving requires close working relationships among people at all stages in the process . . . in flexible-system production much of the training of necessity occurs on the job, both because the precise skills to be learned cannot be anticipated and communicated in advance and because the individual's skills are typically integrated into a group whose collective capacity becomes something more than the simple sum of its member's skills. . . . Their sense of membership in the enterprise is stronger and more immediate than any abstract identification with their profession or occupational group. They move from one speciality to another, but they remain within a single organization. (p. 47-50)*

Trist (1981) notes many distinctions and concerns similar to those pointed out by Reich. He feels that traditional technocratic bureaucracies are mismatched with what he calls "new turbulent environments," in which higher levels of interdependence among organizations and higher levels of complexity together generate much higher levels of uncertainty (p. 39). Trist argues that, in this new environment, "large competing organizations, all acting independently in diverse directions, produce unanticipated and dissonant consequences" (ibid). Furthermore:

> The higher levels of interdependence, complexity, and uncertainty now to be found in the world environment pass the limits within which technocratic bureaucracies were designed to cope. Given its solely independent purposes, its primarily competitive relations, its mechanistic authoritarian control structure and its tendency to debase human resources, this organizational form cannot absorb environmental turbulence, far less reduce it. (p. 40)

Like Reich, Trist concludes that, "a transformation of our traditional technocratic bureaucracies into continuous adaptive learning systems is imperative for survival and involves nothing less than the working out of a new organizational philosophy" (p. 44).

The QWL movement responds to productivity-related problems and supports the transformation called for by such writers as Trist and Reich to a more participative philosophy and approach to the organization and management of work. As noted by the New York Stock Exchange study (1982):

> The role that people play matters greatly. . . . Compared with the capital side of boosting productivity, the investment of time and money in better utilizing people is relatively small; the potential benefits are enormous. (p. 3)

According to Reich (1983):

> Financial-capital formation is becoming a less important determinant of a nation's well-being than human-capital formation . . . Only people can recognize and solve novel problems. Machines can merely repeat solutions already programmed within them. (p. 66)

---

*Copyright © 1983 by Robert E. Reich. Reprinted by permission of TIMES BOOKS/The New York Times Book Co., Inc. from: *The Next American Frontier*.

He concludes, as does Birch (1981), that "industries of the future will depend not on physical 'hardware,' which can be duplicated anywhere, but on human 'software,' which can retain a technological edge" (Reich 1983, p. 66).

The Changing Work Force

Both demographic and attitudinal changes in the work force support the continued development of QWL activities. For example, the rate of increase in the total size of the labor force will decline throughout the 1980s. On the average, it is estimated that there will be three-quarters of a million fewer persons added to the labor force each year during the 1980s (Institute for the Future 1979). The days of abundant cheap labor are coming to an end. With fewer new workers coming into the labor force, employers will have greater incentives not only to invest in labor-saving technology, but also to be flexible in meeting the needs of employees in order to attract and hold a stable workforce.

As the "baby-boom" cohort matures, the "new" youth—those born since 1970—compose a smaller portion of the overall population (Lewis and Russell 1980). The consequences of fewer youth is a dwindling supply of entry-level workers and fewer people for jobs in the secondary labor market. At the same time, the percentage of minority youth will grow, so that, "by the early 1990s, minorities will account for more than 30 percent of the population in the entry-level age groups (16 to 24 years old)" (ibid). These shortages of qualified applicants may force employers to change traditional work structures appreciably in order to attract and retain the labor needed. They may also become motivated to see that the traditionally poor achievers in school—the disadvantaged, non-English speaking, and so on—receive help to become competent in basic skills and become otherwise better prepared for work.

American women have returned to paid employment in proportions not seen since statistics have been kept. Estimates are that by 1995, 44 percent of all workers will be women (Lewis and Russell 1980). Furthermore, women increasingly demand to receive equal pay for equal work and to be considered seriously for work in all types of jobs for which they are appropriately qualified.

Many more women are single parents supporting a household, others are members of two wage earner families. Both of these situations create a demand for change in the workplace. Working mothers need flexibility for doctor's appointments and day care, for example. Both male and female workers in two wage earner families may desire longer vacations in lieu of other benefits or higher pay. Women who previously left the work force and who returned to work looking for fulfillment also have different expectations. Women want challenging jobs that are meaningful. They wish to use their skills and to have an impact on the economy and society.

Young workers—those born between 1945 and 1965—are highly educated and accustomed to the benefits of life during the affluent 1950s, 1960s, and 1970s. They graduated from high school and attended college in record numbers. The median years of schooling completed for those over age twenty-five has grown from 8.6 years in 1940 to 12.5 years in 1979, and the proportion of those with four or more years of college has almost quadrupled in the same time period (see table 6).

Partially because of their quality education, these young workers have high expectations concerning what they expect from work (*Business Week* 1981; Levitan and Johnson 1982; O'Toole 1973). Their whole pattern of earning money and their thoughts about security do not center around the Great Depression of the 1930s, as is the case of many workers now reaching retirement age. Many of these young workers want their work to be interesting and significant (Cooper et al. 1979; Staines and Quinn 1979).

TABLE 6

LEVEL OF SCHOOL COMPLETED BY PERSONS OVER AGE 25
UNITED STATES, 1910 to 1979

All Races 15 and Over	Percent by Level of School Completed			
	Less Than 5 Years Elementary School	4 Years of High School or More	4 or More Years of College	Median School Years Completed
1910	23.8	13.5	2.7	8.1
1920	22.0	16.4	3.3	8.2
1930	17.5	19.1	3.9	8.4
1940	13.5	24.1	4.6	8.6
1950	10.8	33.4	6.0	9.3
1960	8.3	41.1	7.7	10.5
1970	5.3	55.2	11.0	12.2
1975	4.2	62.6	13.9	12.3
1979	3.5	67.7	16.4	12.5

SOURCE: Grant and Eiden (1980).

At the same time, periodic surveys have shown a statistically significant decrease in workers' perceptions of job satisfaction. For example, in 1967, 27 percent of workers interviewed felt they had skills that were not being fully utilized; by 1977, this percentage had risen to 36 percent (Institute for the Future 1979). Current surveys of young people show that nonmonetary rewards (i.e., interesting work, seeing the results of your work, having a chance to develop skills, participating in decisions) are becoming more important (Cooper et al. 1979; Staines and Quinn 1979).

The research on whether the average worker is now more or less satisfied with work than in the past contains much controversy:

> Some commentators argue with vigor that we are currently in the midst of a major "work ethic crisis" that portends revolutionary changes in how work will be designed and managed in the future. Others respond that the purported "crisis" is much more in the minds of those who herald its arrival than in the hearts of those who perform the productive work of society. (Hackman and Oldham 1980, p. 5)

Levitan and Johnson (1982), for example, point out that "the work ethic has always existed more in the world of scholars than of laborers, more as a concept than as a powerful motivating force keeping people at work" (p. 28). They conclude, therefore, that "the survival of work does not depend on the motivational force of an abstract work ethic" (ibid).

Many workers want more than just a good paycheck; they also want "to become masters of their immediate environments and to feel that their work and they themselves are important—the

twin ingredients of self-esteem" (O'Toole 1973). However, people who do not become masters of their work environment make adjustments to avoid feeling continuous dissatisfaction and distress. Those adjustments may range from working a little less hard or taking an unnecessary sick day, to sabotage or theft of company property (Hackman and Oldham 1980). Dissatisfied workers who make these adjustments may even say they are content with their job, because they have come to define "satisfaction" as minimal work for a paycheck that supports them.

Increasingly, however, workers recognize that what is bad for the company is often bad for them, and some of them try to improve their company's productivity in order to save their jobs. For example, Chrysler workers gave up earlier-earned benefits to keep working during the company's recent crisis. Personnel at the Chevrolet Gear and Axle Plant in Detroit "pleaded with plant engineers, and harangued outside equipment suppliers, over matters they thought might compromise their standards." And, one worker asserted, "I'm not going to see my job go down the tubes just because some engineer is too bullheaded to listen to me" (Burck 1981a, p. 68). The general manager of TRW's Lawrence Cable Division in Lawrence, Kansas, reported that most employees have no specified jobs within their team (there are ten teams with five to twenty-eight members). Most members "can handle most of the functions required of their team. . . . The team members are doing whatever is needed—running machines, removing reels, picking up scrap" (ibid.).

At times, when it has appeared that a business might be forced to close, workers have bought the company and operated it as owner-workers. In an analysis of the American plywood industry—of which one-eighth is worker-owned firms—Bernstein (1976) found that

> workers seem most willing to depart from the prevailing system and launch into self-management when the traditional system is obviously failing them. A good proportion of the mills were founded either during the Depression or when workers in a private mill saw their own employers about to close shop. . . . When closures are imminent and management is already relinquishing its power, there is no need for workers to force it out or coerce it into sharing power by a strike. (p. 25)

It is important to note that QWL developments have been implemented in both union and nonunion firms. Although most projects have been in nonunionized firms, the amount of labor-management cooperation has increased. (Walton 1979, p. 97).

The United Auto Workers (UAW) and the United Steelworkers of America (USW) were early leaders in QWL developments. In 1973, for example, the UAW negotiated contracts with the major automobile manufacturers that contained a clause calling for joint labor-management QWL committees (Davis 1977; Stein 1983). As pointed out by Walton (1979), the primary objective of this QWL program was to create a more participative and satisfying work environment; it was not intended primarily to increase productivity or improve product quality (p. 97).

In the spring of 1980, the United Steelworkers of America entered into an experimental agreement—known in the industry as "Appendix 15"—with the major steel producers to establish labor-management participation teams at plants selected jointly by the parties. As described by J. M. Kipp, program supervisor, of Bethlehem Steel Corporation, this experimental agreement establishes in broad and general terms a formal, three-level structure of labor-management participation committees.* At the level of the shop floor, the labor-management participation

*J.M. Kipp, personal correspondence, 1983.

teams have the mission of identifying and solving work unit problems related to performance, employee morale and dignity, and conditions of the work site.

In 1980, the Communications Workers of America (CWA) and AT&T negotiated similar provisions in their labor contract. Glenn Watts of the Communications Workers of America observed that union cooperation with management may be risky, but that cooperation in some form is essential for survival in the long run (Burck 1981b).

Many professionals and specialists in labor-management QWL developments feel that continued developments in this field are uncertain. As Davis (1977) suggests, "the major motive for opposition is the fear that management undertakes unilateral initiatives in this field in order to avoid unionization"
(p. 61).

Nevertheless, organized labor is seen by Neal Herrick, a long-time QWL and labor-management specialist as playing an essential role in QWL developments.* Over the past ten to twelve years, joint labor-management cooperation and involvement have made a qualitative difference in the practices of participative management. For example, Herrick points out that unions have played a crucial role in establishing the key differences between worker participation in making decisions, and in participation in making decisions about *how* decisions are made. Moreover, Herrick notes that unions have been crucial in helping to establish worker participation as a right rather than a privilege.

In general, the decline in labor force growth, the search for self-fulfillment, increased levels of educational attainment, increased numbers of two wage earners in a household with fewer children, the move toward more permanent part-time work, and the increased competition for fewer middle management positions by the increasing numbers of people from the "baby boom" cohort all signal the need for greater employee flexibility in dealing with job dissatisfaction. At the same time, they provide powerful incentives for employers to be flexible in meeting the personal needs of workers and managers. Marshall (1982) suggests that, although the demand for worker participation has not reached the intensity in the United States that it has in Europe and Japan, the desire for greater worker participation in other industrialized nations will undoubtedly intensify pressure here for some forms of work participation.

Quoting a 1979 article in the *Los Angeles Times* by Tom Hayden, a California Democratic candidate for United States Senate and a codefendent with Jerry Rubin in the "Chicago Trial," Ferguson (1980) points out an aspect of the aging of the work force that is especially relevant and supportive of quality of work life developments. She reminds us that the youth of the 1960s—the so-called 1960s activists—are now into their middle years and many are well established in the labor market. Hayden's and Ferguson's point is this:

> The reappearance in years ahead of the '60s activists . . . will be misread by many. Some will not recognize us, and some will believe we have "settled down" too much. We will not be a protesting fringe, because the fringe of yesterday is the mainstream of tomorrow. We will not be protesting but proposing solutions: an energy program emphasizing renewable resources . . . democratic restructuring of large corporations . . . technology to decentralize decision making and information sharing. . . . (p. 209)

*Neal Herrick, personal correspondence, 1983.

CHAPTER 4

IMPLICATIONS OF QWL FOR EDUCATION AND TRAINING

As noted in chapter 1, QWL developments are having profound and lasting effects on the way work is organized and carried out in American businesses and industries. These changes also have potentially significant implications for education and schooling, and in particular, for vocational education.

Firms that implement QWL activities require skills and knowledge typically not included or emphasized in high school academic or vocational education programs. Thus, QWL developments have significant implications for the instructional content and processes of vocational education. Many of the high-involvement participative management approaches that are characteristic of firms with substantial QWL developments also relate to and support the organization and management of more effective schools.

The next section examines some of the implications of QWL developments for the instructional content and processes of vocational education. The section that follows discusses some of the implications of QWL developments for the organization and management of schools.

Implications of QWL for Instructional Content and Processes

Although QWL developments have potentially significant implications for the instructional content and processes of vocational education, little guidance is available for dealing directly with the skill and training requirements of QWL activities (outside of individual plant or project settings) or with their consequences for public vocational education aimed at preparing future workers for the world of work. Nevertheless, a review of the QWL literature and visits to firms that have implemented substantial QWL activities suggest that to function effectively in high-involvement, participative work settings, workers not only need good basic skills and technical skills,* but they will also increasingly need improved skills and knowledge in two broad areas. These are: (1) group problem solving (including such areas as interpersonal and group process skills, problem solving and decision making, planning, and communication) and (2) the organization and management of production (including such areas as business economics, business operation, statistical quality control, and QWL developments). Examples of skills and knowledge in these two broad areas are shown in figure 4, along with some of the associated reasons for their need in business and industry.

Many people in work settings, and many students, do not have the skills to work successfully in groups doing complex problem solving. Most people have not been trained in how to solve problems in groups. To throw people together in a room and tell them "to solve problems" or

*Technical job skill requirements are changing due to a variety of factors, but their consideration does not fall within the scope of this research effort. For a discussion of changing technical skill requirements, see Russell (1982), and Lewis, Fraser, and Unger (1984), and Fraser, Unger, and Lewis (1984).

"make decisions" and expect them to produce meaningful results is wholly unreasonable (Nadler and Lawler 1983).

While group problem-solving skills have long been recognized as important for management staff, they are of growing importance to all levels of employees in high-involvement companies as a means for change and improvement in quality, costs, and employee morale. The old belief that "two heads are better than one" has been confirmed with evidence that cooperative approaches to work are more effective than competitive approaches (Johnson et al. 1981). This means that all employees will need to work together more to diagnose problems and implement effective solutions.

Likewise, if workers and managers are to help improve the economic viability of their organization, they will need skills and knowledge of business economics and organizational management, which most employees do not have. Most people outside of schools of business and management administration have not been trained in how complex organizations are managed and operated. They therefore do not fully appreciate how their personal efforts may contribute to or diminish the effectiveness, efficiency, and quality of the products or services of their particular work organization.

The overall purpose or goal of an educational program to develop the skills and knowledge in the areas of group processes, organizational management, and QWL developments may be characterized appropriately as teaching *sociotechnical literacy*. In contrast to the more popular but narrower notion of technological literacy, sociotechnical literacy suggests a balanced concern for the social, human aspects of work, as well as the technical aspects, and an appreciation of their interactions.* It should include a better understanding of the philosophical underpinnings and consequences of the shift from a mechanistic, technological, scientific management perspective of work to a high-involvement, participative management perspective and approach to work. The broader perspective and goal of sociotechnical literacy is more consistent with major workplace innovations and requirements than a purely technological focus.

Development of component skills and knowledge in these broad areas is seldom an explicit part of a vocational education program. Their development rarely receives the amount of emphasis, relative to specific job skills, that their increasing importance in business and industry warrants (Halasz and Behm 1983).

This is not to say that development of skills in these broad areas is the sole responsibility of vocational education, or that vocational education totally ignores skills in these areas. Curriculum guides and instructional materials are available for some of these skill areas (e.g., problem-solving and communication skills). Development of skills in other nontechnical areas associated with QWL developments are frequently the focus of such experiences and programs as Junior Achievement (e.g., business economics and organizational management) and of vocational student clubs such as the Vocational Industrial Clubs of America (VICA), the Distributive Education Clubs of America (DECA), and the Future Farmers of America (FFA) (e.g., group process and interpersonal skills). Nevertheless, these programs and materials are scattered and are usually peripheral to or ancillary aspects of the formal school curricula; seldom are they integrated into and emphasized in regular vocational programs.

---

*For a detailed discussion of the principles, concepts, and approaches of the sociotechnical design of work, see Emory and Thorsrud (1969), Gyllenhammer (1977), Herbst (1974), and Wirth (1983a, 1983b). The references given by Wirth also provide additional insights into and discussions of the potential educational implications of the sociotechnical approach to work design.

SKILL AREA	REASON FOR NEED IN BUSINESS/INDUSTRY
I. Group Problem Solving	Group problem solving is one of the primary modes for change and improvement in high-involvement companies
A. Interpersonal Skills	
• Self-directed	To enhance flow of ideas
• Flexible	To reduce need for supervision/inspection
• Assertive	To change as market conditions change
• Open	To reduce inefficiencies due to personal conflicts
• Curious to learn	To reduce nonproductive time
• Able to share/teach	To profit from people's individual motivations
• Responsible	To promote sharing/cooperation
• Understanding of behavior	To encourage continuous improvement
	To facilitate individual and corporate growth
	To acknowledge and encourage input from workers at all levels
B. Group Process Skills	
• Role theory/norm theory	To have similar goals held by all to increase the possibility of reaching goals
• Techniques of structuring discussions	All workers need to serve as leaders in various activities because of need for flexibility
• Cooperative attitude	Fifty people can work together and not just independently
• Leadership	Cooperation proves more productive than competition
	To encourage equal participation
C. Problem-solving Skills	
• Problem identification	To be rational in addressing problems
• Problem solving process steps	To be systematic and comprehensive in addressing problems
• Data collection and analysis	To address the correct issue
	To generate the critical information necessary for solving problems
D. Decision Making	
• Risk assessment	If management is pushed to lower levels, decision making goes on at lower levels
• Data review	

SKILL AREA	REASON FOR NEED IN BUSINESS/INDUSTRY
D. Decision Making (continued)	
• Identifying gaps in information	Organizational philosophy (values) shared with all workers enhances mutual goal development
• Values	To be aware of information relevant to a decision
• Process models/choice models	To understand importance associated with various factors within a decision
	To make better decisions with improved results
E. Planning	
• Goal setting	If management is pushed to lower levels, planning goes on at lower levels
• Establishing measurable action steps	If process is right, product will end up "right"
	Feedback is necessary for continued improvement
F. Communication	
• With individuals	Presentation of own and group's ideas is required for management action
• With groups	Group work rather than individual work is the mode
• Presentation skills	Necessary to listen if want to learn from others
• Verbal skills	Change requires sharing, discussing, analyzing, persuading, etc.
• Writing skills	
• Listening skills	
G. Thinking/Reasoning	
• Generate alternatives	If all are to contribute, all must think effectively and creatively
• Estimate & approximate	Decision-making, planning, problem solving all require critical thinking, and these skills will be required of all levels of workers, not just management
• Giving & getting meaning	
• Collecting information	
• Classifying	
• Finding patterns	
• Generalizing	
• Sequencing & scheduling	
• Using criteria	
• Reshaping information	
• Judging information	
• Communicating effectively	

Figure 4. Skills/knowledge/abilities needed for working in work-improved organizations

SKILL AREA	REASON FOR NEED IN BUSINESS/INDUSTRY
II. Organization and Management	All workers share more of the management responsibilities in high involvement companies
A. Business Economics	
• Relationships between costs and income	To act as a team and know how individual effort fits in
• Market standing/ environmental conditions	To enhance ability to change as called for
• Basic economic theory Reward structure	To encourage productivity through incentives and information sharing To reduce waste, duplication
B. Business Operations	
• Relationships between functions/systems	To encourage acting as a whole
• Coordination of resources	To reduce duplication of effort To provide feedback, information for correction purposes To enhance appropriate assignment of resources to maximize results as a whole
C. Management	
• Management theory	To exchange information effectively
• Relationships between performance and other factors	To motivate and lead co-workers To attain desired performance
• Models of communication	To facilitate workers' quality of daily activities and long-range career goals
• Power/control/ authority/delegation	To improve attendance; reduce turnover, sabotage, grievances
• Human resource development	To attain improved union/management relations To reduce stress
• Feedback/appraisal	To tap knowledge of line workers
• Job analysis	To improve and change continuously as needed
• Change processes	To avoid necessity for resolving same problem To enhance match between technology, people, and procedures/policy To determine if goals have been met, should be modified, expanded, etc.
D. Statistical Quality Control	
• Sampling	To improve quality, reduce defects, reduce waste of time and measures
• Quality standards	
• Cause and effect	To identify and analyze problems

SKILL AREA	REASON FOR NEED IN BUSINESS/INDUSTRY
D. Statistical Quality Control (continued)	
• Graphs and charts	To improve productivity, efficiency
• Data analysis	
• Mathematics and statistics	
E. Introduction to QWL	
• Definitions of terms and concepts	To enhance understanding of the need for group process and organizational management skills
• Philosophy	
• Role of QWL at various levels in companies	
• Union/nonunion involvement	

NOTE: See Appendix A for further examples of skills and knowledge in each of the major areas shown in the figure.

(Figure 4, Continued)

Group Problem-solving Skills

Having workers and managers participate in problem-solving groups requires vastly different analytical skills than when workers are told what to do by management and are expected not to think—the norm for many assembly lines in the past.

Site visits to high-involvement, participative companies suggest that group problem-solving includes such skills as: (1) interpersonal and group process skills, (2) communication skills, and (3) thinking and reasoning skills. These are all complex, non-job-specific skills needed for effective participation in groups that focus on problem identification and solution. And they are not specific to particular firms or work settings. Rather, they are broadly applicable skills transferable to and useful in a wide range of work settings. (Appendix A contains an illustrative, but by no means a complete, listing of group problem-solving skills.)

Interpersonal skills. Interpersonal skills are needed in many facets of organizational life, including group activities. Interpersonal skills are attitudes and attributes of individual behavior. The trait of being self-directed is valued by high-involvement companies, because self-directed workers lose less time waiting for a supervisor to tell them to get started or to switch to a different task. High-involvement companies trust employees and feel they are intelligent enough not to need constant supervision.

Similarly, flexibility is valued in employees. Flexible workers can switch between tasks within short periods of time, as needed, and can be retrained for a different job as the company undergoes more fundamental shifts. Along the same lines, the characteristics of being open and curious to learn are especially necessary in companies that use autonomous work groups and where change and improvement are ongoing processes.

Assertive employees are desired by high-involvement companies because they are willing to express their opinions even if they differ from their co-workers' or supervisors' opinions. In this way, all possible suggestions or ideas for improvement may be considered.

The ability to share information or help teach others is also useful for facilitating employee substitutions and avoiding slow-downs in production. The substitution may be impossible unless workers are willing to teach and learn from each other. Sharing techniques for saving time and effort or for doing a more thorough inspection is necessary when striving for a higher-quality product or service at less cost.

High-involvement companies also need employees who are willing to accept responsibility for their own work. In the process of sharing decision making and potential input, the need for responsibility throughout the organization grows. If each worker and manager is to ensure the quality of his or her own work, they must be willing to admit when a mistake has been made and do the extra work necessary to correct it, if possible. That is in direct conflict with the "pass the buck" philosophy that has become standard in many of the old-style companies.

High-involvement companies seek employees who have human interaction skills. Interpersonal skills are admittedly related to an individual's upbringing, life style, and personality, but they may also be enhanced or facilitated by the work environment. Finally, the self-fulfilling prophecy can be an important factor in such traits as flexibility, willingness to learn, or assertiveness.

Group process skills. Group process skills enable members of a group to understand the dynamics of small groups and how to work productively within them. Individuals who have knowledge of role theory and norm theory have a better understanding of what group membership means, how group roles may conflict with other roles within the organization, and how to deal with other groups to get things done. Abilities in all these areas mean fewer road blocks to group effectiveness.

Information on techniques of structuring discussions, such as brainstorming, parliamentary procedures, nominal group processes, and conduct of group discussion are all useful to members of task-oriented groups. These techniques help groups stay on target and accomplish their objectives with less waste of time, both of which are mutual goals of the company and the individual. No one enjoys boring committee meetings. These techniques help groups reach consensus.

A cooperative attitude—the conception that working with others is useful and enjoyable—is necessary to work effectively in high-involvement companies. Company representatives emphasize often that they prefer employees who have a team spirit and who like to work with others. These representatives feel that schools, as they currently exist, foster individual effort rather than group effort. Company representatives also indicate that most employees adjust quite happily to working in groups, rather than as individual performers, if they are trained and oriented to this way of thinking.

Leadership is an elusive concept, but companies that emphasize maximal use of human resources at all levels try to enhance leadership skills at all levels, too. Companies need problem-solving group leaders. They need leaders for ad hoc task forces. They need leaders who provide on-the-job training for co-workers. They need production work group leaders. All of these leaders may work below the supervisory level, so leadership skills should be available throughout an organization.

Problem-solving skills. Problem-solving skills build upon the scientific method. They entail problem identification, cause-and-effect analysis, data collection and analysis, generation of alternatives, selection of solutions, implementation, and evaluation. These are the steps most problem-solving groups or quality circles follow. The skills must be taught, if not in schools, by companies, yet problem solving is needed by all individuals throughout their lives.

Problem identification or definition is a crucial step in the problem-solving process. If the problem or issue is not defined correctly, it will never be solved through this process, no matter how rigorously one follows the remaining steps. Companies operating in a highly competitive world market do not have time to solve the wrong problems. Values and perceptions both affect how a problem is defined, which is why a group perspective may be very useful. Diagnosing a problem through conduct of a cause and effect analysis usually involves fishbone diagramming and use of brainstorming techniques. Again, a group perspective may facilitate a creative yet rational analysis.

Data collection and analysis are tools applicable to many settings. Developing checklists, tabulating frequencies and percentages, and displaying results are used to identify such crucial business factors as defect rates, scrap rates, absenteeism, or inventory levels. The data enable groups to determine if some factor is causing a problem and, later, when a change has been made, to see whether the problem has diminished. Therefore, workers essentially need research and evaluation skills, at least at a basic level, in the high-involvement companies.

After analyzing the problem, a quality circle or similar group will (1) generate potential solutions; (2) choose one or more for implementation; and (3) either implement it themselves, if they have the authority, or present their analysis and proposal to management for approval. It is management's responsibility to provide feedback, even if the response is negative or indicates that solution implementation must be delayed.

Decision-making skills. The skills involved in making decisions relate to and overlap with those of problem solving. Decision-making skills are needed for all employees because, if management wishes to gain the expertise of the actual production or direct service worker, it must in essence push traditional management tasks to lower and lower levels. Even if final decision-making is retained by management, all levels of employees need to be able to recommend decisions to management.

Decision-making skills entail the ability to assess risk, to review data and identify gaps or conflicting information, to consider the use of process models or choice models, and to understand how values relate to choices.

Assessment of risk involves such activities as estimating probabilities of some occurrence or the possible impact of some intervention within different settings. It involves forecasting cost and time consequences. Of course, workers and managers can usually only assess risk for ventures or changes within their own areas because that is the part of the company about which they have the most information. Further risk assessment may take place at higher levels of management, but workers in high-involvement companies need an awareness of (1) how to make decisions for those areas over which they have authority, (2) how to make decisions for recommendation purposes, and (3) how to understand the logic behind management decisions.

When making a decision, all the data necessary for making a choice may not be readily available, or data that are available may not be reliable indicators of what is being examined. Decision makers must be able to determine if data are adequate for making decisions, or if additional data should be collected, what should be measured. The members of the problem-solving teams and ad hoc task forces in high-involvement companies need skills in examining and using statistical information.

An important factor that is inherent throughout the decision-making or decision-recommending process, but that is often overlooked, is the role of values. Decision makers need to recognize that values shape the perceived desirability of choices. Those companies where worker's goals are the same as management's goals have a greater chance of succeeding, because important values are shared and decisions are made that reflect shared values. Discussion and consensus building around goals and values enhance the development of shared values and an understanding of the role of values.

There are a number of processes a decision maker may use to make a decision. These processes may be employed by a single decision maker or by groups. However, groups may need to be more explicit about their process if they want to convince others to adopt their decision. Decision makers may want to make use of such techniques as mathematical decision making (e.g., expected value or subjective expected utility formulas), decision trees, venture analysis, or cost-benefit analysis. To employ these techniques, members of problem-solving groups will need training and practice.

Planning skills. Planning overlaps with decision making and problem solving. Planning involves the establishing of goals and developing of measurable objectives and a means to achieve

the goals/objectives. It requires "the selection and relating of facts and the making and using of assumptions regarding the future in the visualization and formulation of proposed activities believed necessary to achieve the desired results" (Terry 1968, p. 157). Planning requires a high level of conceptualization skills.

Goal setting requires knowledge of actual and ideal achievement. To be effective, planners must also know how their individual goals mesh with those of the broader work unit, division or department, and overall organization. Goals must then be made operational via action steps or measurable objectives. These must be developed in such a manner as to facilitate evaluation and feedback.

Organizations are usually very goal driven entities, whether the goal is to make a profit, provide a service, or supply a need. Individuals at all levels within high-involvement organizations need planning skills so they can assist in meeting their individual and company's goals.

Communication skills. The ability to communicate orally and in written form with individuals and groups is important in any job. The importance is heightened in high-involvement companies, where much is determined in groups and where it is important that agreement with the decision is felt throughout the firm. Another reason why communication skills are critical in companies with the new management style is that flexibility and constant change for improvement are crucial for company survival. Suggestions for change and information on how to change most effectively have to be communicated in some manner. The days of isolated workers and managers toiling in their individual cubbyholes are dwindling. Communication flow up, down, and sideways in the organization is multiplied in effective companies (Peters and Waterman 1982). Conference and meeting rooms are in abundance. The exchange of ideas and the give-and-take of consensus attainment require excellent communication skills. Workers who previously have worked mainly with their hands will now be making presentations to management on their ideas of how to save the company money. And management will have to learn how to listen. All employees of a company will have to learn how to listen to each other if they wish to put participative management into practice.

Thinking/reasoning skills. Most persons are not born knowing how to be logical or creative. But these thinking skills, as well as others, may be critical in all aspects of life; their use is certainly not limited to the work domain. The need for all levels of employees to be thoughtful and logical has increased in the high-involvement companies.

Brown (1983) breaks thinking and reasoning into the following categories:

- Generating alternatives
- Estimating and approximating
- Giving and getting meaning
- Collecting information
- Classifying
- Finding patterns
- Generalizing
- Sequencing and scheduling
- Using criteria
- Reshaping information
- Judging information
- Communicating effectively

Many of these categories have been previously mentioned in this section because so many of the skills necessary for working in high-involvement firms involve thinking—thinking about how to improve the company and the quality of life at work. Skills in thinking and reasoning are desired so that management alone is not responsible for coming up with all the innovative ideas, planning how to implement them, and solving problems and making decisions along the way. All of these activities are shared to a much greater extent in high-involvement companies. The consequence is that all levels of employees now need to know more about managing an organization.

Additionally, in a QWL climate, a kind of learning ability is needed in which the learner has a capacity to create order and meaning out of his or her world. This is different from an emphasis on merely being able to acquire correct information. It seems to include the ability to deal with ambiguity and uncertainty, to deal with and "manage" differences (e.g., in people, values, technologies), and to visualize and make informed judgments about multiple outcomes and realities (i.e., not a linear, "binary," right-wrong approach to judgments and decisions).

Organizational and Management Skills

Traditional skills taught to managers or learned by experience now must be shared with all levels of employees. Management texts for years have discussed business economics, operations, human resources management, and statistical quality control. These subjects must be taught to all levels of workers for high-involvement companies to function effectively. There are other subjects in management texts of course, but these are the prime ones common across all areas of business. (Appendix A includes examples of skills and knowledge in the areas of organization and management.)

Business economics. A knowledge of the costs required to run a business, a typical profit margin, the effect of waste and downtime, the expense of benefits, and, the relationship between expenditures and income are crucial for thoughtful involvement in increasing company profit and reducing costs. Employees who do not understand the connection between the price of the product their firm markets and the wages and benefits that they receive or the amount of scrap at the end of the day cannot be expected to be very helpful in a program to provide a better product at less cost. Companies that are trying to improve quality, increase productivity, and heighten worker satisfaction have begun to teach their employees microeconomics, that is, economics as it relates to the internal workings of their organization. They provide instruction about how a dollar from a sale is expended in operating the business, how the company stands in the world market or within the national economy, and how each individual employee's efforts contribute to the overall financial health of the organization.

Some high-involvement companies use incentive-based reward systems to encourage the application of knowledge about the firm's economic status and thereby improve profit for both the company and its employees. Most incentive systems, such as the Scanlon Plan and Improshare, include training components on economics as it relates to the organization.

Business operations. Just as workers and managers in high-involvement companies need to know about the financial workings of firms, they also need to know how the business operates functionally. This need stems from the basic issue of understanding how all of the individuals and departments are necessary and interlocking components. Employees who know how their efforts fit into the larger scheme are more likely to take pride in and assign meaning to their work. To achieve this understanding, Japanese companies transfer employees laterally over a number of years to let them see, first-hand, all of the functionings throughout the system. This approach is

used less often by American firms. But workers and managers still need to understand the coordination of resources, systems, and the relationships between the functions in their company.

This knowledge encourages all staff to act as a whole, helps to reduce duplication of effort, and encourages the corrective feedback and information flow between functions—all of which save money, enhance quality, and make work more satisfying.

Management. When all employees are involved in management-type tasks, they need to know what managers need to know:

- Management theory
- Relationship between performance and other factors
- Models of communication
- Human resource development

They may also need information about such issues as power, control, authority, delegation, job analysis, change processes, and feedback and appraisal. For example, workers on an assembly line need to know how to provide constructive feedback to co-workers who hand them a faulty part. Most people do not feel comfortable with confrontation. Knowledge and skills in these areas are necessary because management must plan, organize, implement, and control work to achieve some purpose. When all employees are involved at all four of these stages, then all are practicing managers and are theoretically a part of the management team.

Statistical quality control. One of the major types of changes in business and industry work design is the shift of responsibility for quality from an "end of the line" inspector back to each work unit and each worker. This means that both inspection skills and knowledge of statistical quality control are required. Inspection skills may vary according to the product. Statistical quality control techniques, however, are applicable across many settings.

Statistical quality control involves an understanding of standards and control limits for quality, sampling, measurement and data collection, and the development of control charts. These tasks require basic mathematical skills (e.g., calculating percentages, plotting graphs) and introductory statistics (e.g., computing means and standard deviations).

Quality of work life principles and techniques. If students are to understand the importance of the skills and knowledge mentioned in this section, they need to understand the shift in the philosophy of work from a scientific management, technological work design to a democratic, sociotechnical philosophy. This should include an awareness of the historical shift in America from the earlier Tayloristic philosophy of work to the philosophy and values that are emerging in the QWL paradigm and in sociotechnical approaches to work. It should also include awareness of the roles that organized labor has played and its contributions to the evolution of QWL activities. It may also include an understanding of the shift to "open systems" and "ecological" perspectives of work, in which the welfare of systems is seen in terms of the quality of the interconnections of the parts, as opposed to an earlier, more atomistic and mechanistic world view. Students should also appreciate the critical distinctions between the philosophy, values, and models of QWL developments, and the methods and techniques by which these values and beliefs are implemented in the workplace (e.g., quality circles, autonomous work groups, gainsharing plans, labor-management collaboration, and so forth).

Herrick, Bartholmew, and Brandt (1975) suggest that, in addition to teaching students the skills needed to function effectively in high-involvement workplaces, schools must also demonstrate their need for these skills. They point out that

> participatory skills are more and more necessary to the effective functioning of business and industry. The educational system can provide students with these skills only by creating participatory decision-making processes in the administration of its schools. (p. 67)

An example of how one state is facilitating the development of more participatory administration of schools was found in Minnesota. The Minnesota Association of Area Vocational-Technical Institutes (AVTS) has developed an approach to link QWL developments to vocational education (Babcock 1983). This effort is designed to assist Minnesota's AVTS to incorporate the concept of quality circles into the management and curricula of the state's thirty-three AVTS member institutions.

Three major corporations—Honeywell, 3M, and Control Data Corporation—formed a partnership with the Minnesota AVTS to provide a one-week conference to train a total of fifty-six representatives from twenty-seven AVTS as quality circle facilitators. The value of this business contribution to vocational education in materials, time, and expertise has been estimated at five hundred thousand dollars.

Since their initial training, the quality circle facilitators have trained other staff in their AVTS. Some of the schools teach quality circle concepts in regular vocational education courses, and quality circle concepts and processes are being implemented in the management and operation of several of the institutes. The introduction of quality circle concepts in the Minnesota AVTS is still in an early stage of development, and the Minnesota approach may not be suitable for others, but it illustrates one state's efforts to infuse QWL developments into the formal curricula and into the organization and management of vocational institutions.

In addition, a recent report of the American Association of School Administrators (Brodinsky 1983) contains a chapter describing a number of potential implications and applications of QWL developments for the organization and management of schools. Included is a brief description of the implementation of seven "quality interaction circles," consisting of teachers, aides, and clerical staff, in the Muskegon (Michigan) Public Schools.

Conclusions

As noted earlier, traditional, scientific management continues to be the dominant paradigm for the organization and management of work. How long it will remain so is unknown. Some see the emergence and continued growth of the QWL paradigm as a slow, evolutionary process. Others, such as Reich (1983), believe that a slow transition to flexible systems of production and associated QWL developments is undesirable and will lead to larger crises in America's global economic competitiveness. Still others, such as Mohrman and Lawler (1981), believe that we are in the final stages of a major paradigm shift—a revolution in which we may soon see the QWL paradigm not as a radical approach, but as the dominant paradigm for work and as "the only way to operate" (p. 21).

It is unclear whether the shift to the QWL paradigm will continue, and whether it will do so as a slow evolutionary process or as a major revolution. This uncertainty creates a dilemma for vocational education in deciding how much attention to give to the dominant scientific management paradigm of work and how much to give to the QWL paradigm. Although this dilemma cannot be resolved at this time, Arthur Wirth, professor of education at Washington University, St. Louis, Missouri, and an expert on the relationships between sociotechnical work

designs and education, suggests that a realistic approach may be to acknowledge the dominance of the traditional management approaches while informing students of the QWL approach and helping them to develop the skills and knowledge needed to be flexible and adaptable to emerging QWL developments.*

The higher-order skills required by changing workplaces are neither unique to work, nor to a lower, nonprofessional stratum of jobs. They are broad, generic, and transferable skills required for all phases of life in a complex society and in nonprofessional and professional jobs alike. This means that (1) vocational education aimed at development of these skills is broader than job training in its traditional sense and meaning; (2) it is appropriate for *all* students, regardless of their future educational or occupational aspirations and expectations; and (3) unnecessary curriculum tracking of students may be eliminated.

Vocational education must change if it is to develop the kinds of skilled workers required in high-involvement, participative firms. Both the content and process of vocational education will be affected. Traditional, compartmentalized vocational service areas (i.e., trade and industry, agriculture, home economics, business and office, marketing and distributive education), each of which focuses on specialized job skill development, should be reexamined in order to accommodate development of both basic skills and the sophisticated skills, judgment, and initiative required by more competitive, flexible systems of production.

Curriculum specifications and instructional guides need to be developed to assist vocational educators in developing group process and organizational management skills needed to function effectively at work. These guides should suggest instructional approaches, learning experiences, and program management techniques for infusing these skills and knowledge into existing vocational courses, and they should identify existing resources and instructional materials that support such skill development.

The higher-order skills and knowledge increasingly required by high-involvement, participative workplaces fall within the "five new basics" outlined by the National Commission on Excellence in Education (1983). As emphasized by the National Commission, their development requires "application" and practice. For example, such skills as working effectively in groups, problem solving, and decision making are not developed effectively in the abstract through lecture and discussion. Vocational education is in a unique position to enhance quality and excellence in education because of its instructional approach.

However, vocational education must strengthen and adapt its unique processes and approaches to the new skill requirements of the workplace. Machines, materials, and tools, that provide the essential wherewithal of this unique training, must be maintained and directed toward developing, applying and practicing higher-order skills, knowledge, and personal characteristics required of all students by tomorrow's workplace.

Efforts to improve vocational education should focus on identifying the need for basic and higher-order skills and on developing better ways to provide relevant and realistic practice in their application. For example, a great many work innovations hinge on greater cooperation and involvement of employees both in management and production. Furthermore, for a wide range of subjects and tasks, and for all groups, "cooperation is superior to interpersonal competition and individualistic efforts in promoting achievement and productivity" (Johnson et al. 1981, p. 56). Given the growth of high-involvement, cooperative work settings, the heavy reliance of much of

*Arthur Wirth, personal correspondence, 1983.

education on interpersonal competition and individualistic work, and the current dissatisfaction with school achievement, educators must increase the use of cooperative learning procedures considerably to promote relevance and higher student achievement.

Evaluations of vocational education should focus on the acquisition and level of proficiency students develop in these skills areas—evaluations should be criterion-referenced. The instructional methods and approaches of vocational education can differ substantially from other programs or curricula, but the standards of performance and achievement must be both realistic and uniform for all students. Students who complete vocational education must be capable of levels of performance in critical skill areas at least as high as, or higher, than students of equal ability who complete alternative programs or curricula.

For the time being, at least, the federal role in and support of public vocational education continues to be justified on the same basis that justified its initiation in 1917; that is, vocational education assists the states in providing *all* students with a high-quality, useful education, especially for those students who are not preparing for college and professional careers but rather are preparing to enter the high-skilled world of work after high school. In fact, the changes occurring in the nation's labor market are so profound and the consequences for vocational education so great that *increased* federal support may be required in this decade in order to enable the states to plan adequately and incrementally carry out the complete revamping of the vocational education program required by these changes. Additional federal funds will also be needed to adapt and expand these program improvements to serve the new training needs of growing numbers of disadvantaged and minority students at the secondary level, and to serve the retraining needs of the growing numbers of adults who are dislocated from their employment and will require additional training at the postsecondary and adult levels.

Implications of QWL for the Organization and Management of Effective Schools

The QWL paradigm is both appropriate and useful for understanding and improving the effectiveness and quality of life in school. Important similarities and parallels between QWL and the effective school movement suggest that the QWL paradigm may open up new insights and understandings of the organization and management of effective schools.

The successes of the QWL paradigm demonstrate that, even in the "hard-nosed, hard-headed" business world, humanism is not the antithesis of effectiveness. Workplaces can be both effective and humane. The same thing is true of schools; that is, schools can be both humane and effective workplaces. When viewed from the QWL perspective, the "effectiveness" of schools means more than simply raising student scores on standardized achievement tests; it means both a better way of learning and a new, high-involvement, participative approach to schooling.

The emergence of the QWL paradigm and the effective schools paradigm signals what Kuhn (1962) describes as a major "paradigm shift"—changes in the way in which we think about, explain, and organize reality. In addition, Mohrman and Lawler (1981) provide a detailed and compelling description of the conditions and events that are leading to and bringing about the QWL paradigm shift.

What gives rise to the shift toward the QWL and effective schools paradigms is growing dissatisfaction, concern, and frustration over the mediocrity that permeates the nation's economic, political, and social institutions. Mediocrity is found in the persistence of significant discrepancies

and anomalies between current practices in work and schooling and democratic beliefs and values. (Some of these discrepancies in workplaces were discussed in chapter 3.) These ideological discrepancies point out both the inadequacies of the old paradigms and the strengths of the new, emerging ones and they are compounded by discrepancies between current practices (based on the old paradigms) and a growing number of serious, practical problems and persistent failures to achieve the desired outcomes of work and schooling.

The United States is beginning to formulate higher standards of quality and excellence for all of its institutions, including schools and workplaces. The QWL movement is leading this effort toward higher standards of excellence in work, and the effective schools movement is paralleling this effort in education.

Although research and development on effective schools have been carried out independent of quality of work life developments, similarities and overlaps in the concepts and approaches of the two bodies of work suggest that they are complementary and interrelated. Chapter 3 discussed some of the critical distinctions between the current paradigm of work and the emerging QWL paradigm. Figure 5 extends the key difference (shown in figure 2) to include many of the component beliefs, values, and practices of the current paradigm of schooling and the emerging effective schools paradigm. It compares the similarities and parallels between the emerging paradigms of work and schooling (columns 2 and 4).

The Current Paradigm of Schooling

Many of the methods and instruments of the current paradigm of schooling seem to emphasize working harder but not necessarily smarter (see figure 5). They reinforce old tried-and-tested approaches of school discipline and hard work aimed at acquiring the "right" information once and for all. They seem to adopt a "father-knows-best" approach to learning, providing little opportunity for significant responsibility, involvement, and participation of students in their own learning.

As Cuban (1983) sees it, "the psychology of the one best system, which dominated schooling and instruction in the late 19th century, seems to be resurfacing" (p. 696). This system seems to be based on the scientific management view of work organization and human nature, that is, "creating small, easy jobs for essentially dumb, lazy, greedy human beings demanding discipline." For example, some have argued that the current disciplinary fragmentation and focus of school curricula is, in effect, a way to divide learning into its smallest and easiest parts. By so doing, they (e.g., de Bono 1983; and Bracy 1983) argue that schools overlook or do not give adequate attention to broader, more important, and more difficult-to-acquire skills, such as thinking, synthesis, and comprehension. Bronfenbrenner (1979) points out that it is now possible for most students to go through twelve years of school without ever having to depend upon someone else or be responsible to someone else to accomplish a task, and without ever having had to care for another's welfare or well-being. The effective schools movement, and experiences with the emerging quality of work life paradigm, suggest more promising directions and alternatives—alternatives that are, at the same time, more humanistic and more effective. As Wirth (1983a) sees it:

> If "new work" requires the empowering of people to learn reflectively and to act based on that learning (features of the liberalizing ideal), then continuities are needed between "new work" and schooling. . . . The strange hypothesis emerges that if we seek ideas about how to make *schools* centers of liberalizing learning we might turn to these new

Components of a Paradigm	Working		Schooling	
	Current Paradigm	Emerging Quality of Work Life Paradigm	Current Paradigm	Emerging Paradigm
An Image of the Subject Matter	• Separation of production functions • Worker as disinterested, unthinking component of production process	• The human being and his or her welfare • Integration of individual and organization • Productivity plus QWL	• Learning as a product • Emphasis is on content • Acquiring "right" information once and for all • Learner as unwilling	• Learning as a process • Learning how to learn • What is "known" may change • Learner as willing and interested partner in learning
Beliefs in Particular Theories and Models	• Scientific management/ Taylorism • Automation • Standardization, high-volume production, economies of scale • Hierarchical/authoritarian organizations	• Sociotechnical systems • Theory Z • Industrial democracy • Participative management • Union/management cooperation	• Scientific method • Behavior modification • Hierarchical/authoritarian • Structure of disciplines • Individual competition	• Egalitarian/democratic • Encourages autonomy • Cooperative learning • Socratic/questioning
Values	• Employees as components of production • Wages/tenure/seniority • Control-oriented • Unilateral/directing/ controlling • Efficiency/rationality/ objectivity	• Humanistic belief in worth of individual • Importance of individual needs • Employee rights/due process	• Teachers impart knowledge • Concern for norms • Discipline/hard work • Social necessity for certain period of time to inculcate minimum skills/ train for specific roles	• Students assume responsibility for own learning • Individual performance in terms of potential • Life-long process of education • Achievement plus enjoyment
Methods and Instruments	• Hierarchical bureaucracies • Adversarial labor/mgmt. relations • Collective bargaining • Fractionalization/routinization of jobs • Time and motion studies	• Autonomous work teams • Quality circles • Gainsharing plans • Job redesign/work restructuring Union/management •	• Lockstep progress • Norm-referenced grading/ testing • Age segregation • Rigid structure/prescribed curricula • Book knowledge • Reliance on technology	• Not limited by age/track to certain subjects • Criterion-referenced grading/testing • Divergent thinking encouraged • Electives • Alternative instructional approaches
Exemplars	• Large, high-volume, automated industries • Theory X corporations	• Volvo, Sweden; General Foods, Topeka; GM, Tarrytown; Japan; Hawthorne studies	• Most secondary schools, to varying degrees	• Some graduate-level education • Some "alternative" schools • Some "effective" schools
Social Matrices	• Chambers of commerce, National Alliance of Business, *Fortune* and *Business Week* magazines, Nat'l Assoc. of Manuf.	• American Center for QWL; Ontario Quality of Work Life Centre; Michigan Center for QWL; Work in America Institute; conferences; networking	• NEA/AFT; *Nation at Risk*, etc.	• Informal networks; *Paideia Proposal*; Society for Humanistic Education; AERA SIGS on School Effectiveness and Wholistic Education

SOURCE: Many of the points in the column Emerging Quality of Work Life Paradigm, as well as the designation of the six components of a paradigm, are abstracted from Mohrman and Lawler (1981). Many of the points in the Schooling column, under both the current and emerging paradigm, are abstracted from Ferguson (1980).

Figure 5. Components of the emerging paradigms of working and schooling

workplaces for useful clues. The question of what conditions support the freeing of intelligence (or what thwart it) can be pursued productively both within schools as workplaces and within workplaces themselves. (p. 17)

The Effective Schools Paradigm

By the mid-1970s, declining student achievement was evidenced by lower Scholastic Aptitude Test (SAT) scores, increasing employer and parent complaints about the lack of basic skills in the younger population, and a widespread belief that the schools were not doing an adequate job of preparing the nation's youth. Concerns about the decline in achievement, and the decline itself, continued until, by the early 1980s, it had reached crisis proportions. This crisis was marked by the nearly simultaneous publication of no fewer than three major national reports on the poor state of the nation's schools (National Commission on Excellence in Education 1983; National Task Force on Education for Economic Growth 1983; Twentieth Century Fund 1983).

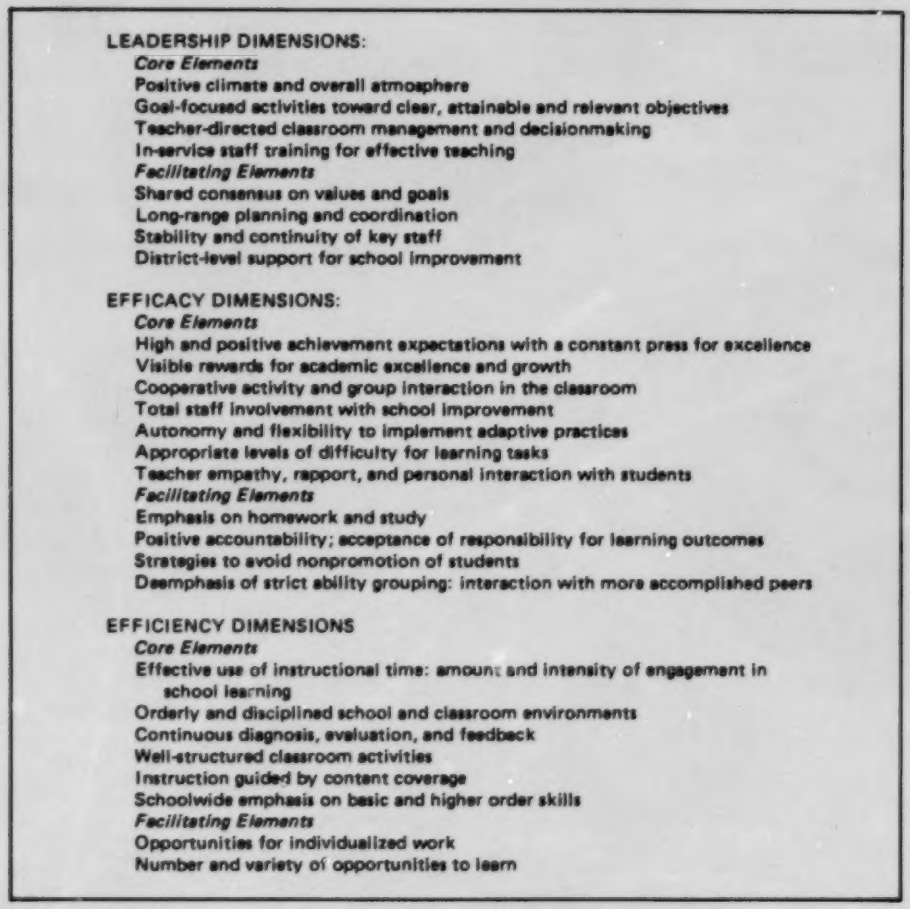
At the same time that this crisis was evolving, research and experimentation in a number of different areas focusing on improved achievement were brought together as part of the effective schools paradigm. The development of the effective schools paradigm converged with the crisis in student achievement and offered the prospect of new insights and approaches to improving student achievement and school effectiveness.

Mackenzie (1983) synthesized the conclusions of ten recent reviews of research on school effectiveness into thirty-one elements or dimensions (shown in figure 6). This aggregation highlights many of the underlying beliefs and values of the school effectiveness movement and describes some of the key characteristics of effective schools. If the dimensions of effective schools shown in figure 6 were read with a few minor alterations in language—for example, with the word "manager", substituted for the word "teacher", and "employee" substituted for "student", and "corporation" or "workplace" substituted for "school" (and eliminating two or three dimensions highly unique to schooling), one would also have a pretty good summary of the key characteristics of a QWL setting.

Mackenzie points out, however, that when effective schools are examined in vivo, "what emerges is not a checklist of specific ingredients but a 'syndrome' or 'culture' of mutually reinforcing expectations and activities" (p. 8). Effective schools provide for "collective involvement in shared responsibility for learning in an atmosphere of success, and positive support and encouragement for purposive and productive behavior" (p. 9). Mackenzie claims that "most studies agree in identifying high and positive expectations as a key to effective schooling" (p. 10). He concludes that

> strategies combining cooperative activity and group involvement in learning tasks with reward systems in which students at different levels of initial ability compete against their own prior performance can combine strong instructional focus with responsiveness to individual needs. (Ibid)

As Ralph and Fennessey (1983) suggest, "the significance of the effective schools research lies more in the ideology underlying it than in the validity of the empirical support" (p. 692). Nevertheless, Miles, Farrar, and Neufeld (1983) conducted telephone interviews and document analysis of thirty-nine effective schools programs in twenty-five states and found that most programs had been in operation for two to three years, about 60 percent of which reported having clear impacts on school improvement goals. Most important is their finding that "nearly all


LEADERSHIP DIMENSIONS:
Core Elements
Positive climate and overall atmosphere
Goal-focused activities toward clear, attainable and relevant objectives
Teacher-directed classroom management and decisionmaking
In-service staff training for effective teaching
Facilitating Elements
Shared consensus on values and goals
Long-range planning and coordination
Stability and continuity of key staff
District-level support for school improvement
EFFICACY DIMENSIONS:
Core Elements
High and positive achievement expectations with a constant press for excellence
Visible rewards for academic excellence and growth
Cooperative activity and group interaction in the classroom
Total staff involvement with school improvement
Autonomy and flexibility to implement adaptive practices
Appropriate levels of difficulty for learning tasks
Teacher empathy, rapport, and personal interaction with students
Facilitating Elements
Emphasis on homework and study
Positive accountability; acceptance of responsibility for learning outcomes
Strategies to avoid nonpromotion of students
Deemphasis of strict ability grouping: interaction with more accomplished peers
EFFICIENCY DIMENSIONS
Core Elements
Effective use of instructional time: amount and intensity of engagement in school learning
Orderly and disciplined school and classroom environments
Continuous diagnosis, evaluation, and feedback
Well-structured classroom activities
Instruction guided by content coverage
Schoolwide emphasis on basic and higher order skills
Facilitating Elements
Opportunities for individualized work
Number and variety of opportunities to learn

SOURCE: Mackenzie 1983, p. 8. Copyrighted 1983 by the American Educational Research Association, Washington, DC. Reprinted by permission.

Figure 6. Dimensions of effective schooling

programs had a strong emphasis on the school as an organization" (p. 41); they emphasized improvement at the school building level, and most had a wide range of organizational improvement goals (ibid).

In a related review of literature on school effectiveness, these same authors (Neufeld, Farrar, and Miles 1983) concluded that "earlier findings that school climate is associated with achievement pointed to the importance of the social system of the entire school" (p. 4). They point out that Coleman et al. (1966) came to the related conclusion that "academic achievement was strongly related to student attitude, particularly the student's sense of control of the school environment" (ibid). Passalaqua (1981, p. 36) also concludes from his review of literature on change in schools that "unless the school as a functioning social system is the focus of social change, program adoption and effective reforms are not likely to occur."

Conclusions

Though admittedly brief, this overview of effective schools suggests some of the potential relationships of the QWL and effective schools movements. It points out, for example, that both movements are based on an abiding faith in the worth and welfare of the individual. Both emphasize the critical importance of the social system (the institution) as the focus of change. And both stress collective involvement and participation in individual and institutional improvement, a sense of individual control, and the importance of an atmosphere of success and high expectations.

It is also important to point out, however, that effective schools do *not* guarantee a better quality of school life. As Cuban (1983) notes, effective schools may have a narrow, reductionist "test score" orientation and a "tightly coupled" administrative style rather than an active, meaning-seeking approach to learning and a "loosely coupled" administrative style that is more consistent with the QWL philosophy. Mackenzie's (1983) dimensions of effective schooling may be interpreted and made operational in very different ways. Thus, for example, management by objectives may be a useful or a manipulative technique, depending upon how the objectives are set and who sets them. Teacher-directed activities toward clear, attainable objectives, and orderly, disciplined classroom environments can be operationalized as mechanistic, manipulative strategies or as strategies for involving students in assuming responsibility for autonomous learning.

Some of these similarities between the emerging paradigms of work and schooling in (1) the images they hold of their subject matter, (2) their underlying beliefs and values, and (3) their methods and approaches, are amplified and illustrated in figure 7 along with excerpts from the literature on QWL and effective schools. (These excerpts also help to clarify some of the more cryptic statements in figure 5.) Most importantly, they attempt to illustrate how the dimensions of effective schools may be interpreted in a way that is consistent with the QWL philosophy.

Similar problems and rationales. The QWL and effective schools paradigms address similar problems of human performance and reflect a common alternative philosophy and approach to the management and organization of work and schooling. They demonstrate that democratization and an open systems (versus a closed, mechanistic systems) perspective, are keys to improving the quality of life within institutions. Institutions are made up of the people who populate them; their needs as individuals—employees, students, and teachers—cannot be separated effectively from the needs of institutions.

Striking parallels and similarities between the definitions or indices of productivity in the workplace and achievement in schools suggest that these are not unrelated problems. Improved productivity and achievement in the workplace are only vaguely defined and mean different things to different people. Nevertheless, in its broadest sense, a survey of chief executive officers and industrial relations officers reports that;

> eight out of 10 respondents would include efficiency, effectiveness, and quality in their productivity definitions. Seven out of 10 would also include disruption, sabotage, absenteeism, and turnover as well as output-oriented factors, even if these are difficult to measure. (Tuttle 1983, p. 481)

While there is no concise, agreed-upon definition of an effective high school at the present time (Neufeld, Farrar, and Miles 1983), the literature reveals agreement on a multiplicity of school outcome indices. The main indices include academic achievement, discipline, vandalism, and

• "Staff interaction and participatory planning around the specific goals of instruction may help engender a more widely shared consensus on values and goals through which the achievement climate becomes self-sustaining." (p. 11)	• "Early in our history, while thinking about how this company should be managed, I kept getting back to one concept: If we could simply get everyone to agree on what our objectives were and to understand what we were trying to do, then—starting with people who went to work, and providing them with the right conditions and resources to do it—we could turn them all loose and they would move along in a common direction." (Hewlett-Packard 1980, p. 8)
Leadership	
• "The effective principal is less likely to prescribe specific methods than to offer continual assistance in response to the problems which teachers identify for themselves." (p. 11) • "Principals are in a key position to provide consistent and continuous leadership to set a tone of order and purpose for the school as a whole, to build commitment for specific academic goals, and to guide the evaluation of progress toward those goals." (p. 11)	• "First-line supervisors should function as work group leaders. This responsibility will require that they coordinate the group problem-solving sessions, moderate group discussions, motivate group members to participate, provide factual information in answer to group requests, interpret company policy and otherwise act to provide group support and maintenance. Rather than issuing orders and commands and expecting obedience, this role requires supervisors to work directly with people in a dynamic decision-making process and to solicit their inputs as to recommended system changes. This role places more emphasis on team building and the ability to involve the workers in work-related decisions." (Drewes 1982, p. 42)
• "Conditions of stability and continuity among key staff, which permit long-range planning and coordination, probably present the best prospects for school improvement." (p. 11)	• "There is growing concern that management itself must share a major responsibility for declining productivity . . . American management has been criticized for being preoccupied with short-run concerns. Organizational performance tends to be judged according to the quarterly financial statement and investment options evaluated in terms of annual or biannual payback returns. This emphasis on short-run optimization has reduced the capacity of management to assume risks associated with long-run capital ventures." (Drewes 1982, pp. 25-26) • "HP did not want to be a 'hire and fire' operation . . . Sharing, to be truly effective, requires an atmosphere of trust and of great respect for the individual. The company seeks to create that atmosphere by maintaining a record of steady growth and good performance, one that assures both stability and opportunity for HP people. . . Perhaps the company's most important responsibility to its people is providing stability of employment . . . This approach is valued by the company for the continuity of experience, skill, and loyalty that it generates." (Hewlett-Packard 1980, p. 4)
Resources	
• "Rather than a deemphasis on school resources, the new research on effectiveness implies a shift in perspective from viewing resources as neutral "input" to looking critically at how existing and future resources can be used to achieve higher goals . . . Although the availability of curriculum resources is important in developing effective teaching . . . the mere availability of such resources cannot guarantee their effective use." (p. 12)	• "Resources must be efficiently used in order to be truly effective." (Drewes 1982, p. 13) • "Investment and technology are important ingredients in the productivity equation but, by themselves, they do nothing. Investment unutilized and technology unapplied will not increase productivity." (Drewes 1982, p. 29)

(Figure 7, continued)

DIMENSIONS OF EFFECTIVE SCHOOLS (Mackenzie 1983)	DIMENSIONS OF QWL AND PRODUCTIVITY IMPROVEMENT
Learning	
• "Foster and sustain a more positive climate for academic achievement by hammering out long-range goals, by working patiently and supportively to help teachers implement sound principles of classroom management, and by setting a consistent example of commitment to excellence at all levels." (p. 7)	• "Another fundamental expectation . . . is that the the organization should have objectives and leadership which generate enthusiasm at all levels. There can be no place for half-hearted interest or half-hearted effort. Management by objective, as opposed to management by directive, offers opportunity for individual freedom and contribution; it also imposes an obligation for everyone to exercise initiative and enthusiasm." (Hewlett-Packard 1982, p. 16)
• "When effective schools are examined in vivo, what emerges is not a checklist of specific ingredients but a 'syndrome' or 'culture' of mutually reinforcing expectations and activities." (p. 8)	• "Strategies for productivity improvement will focus on the creation of organizational climates supportive of a worker-centered approach to productivity improvement." (Drewes 1982, p. 30)
• "Collective involvement in shared responsibility for learning in an atmosphere of success, and positive support and encouragement for purposive and productive behavior." (p. 9)	• "What is the 'HP way'? A lot of employees would like to have a nice cut and dried definition. I don't have one to give. There are a lot of elements in it . . . "You can't describe it in numbers and statistics. In the last analysis it is a spirit, a point of view. It is a feeling that everyone is a part of a team, and that team is HP . . . a philosophy, a series of traditions, a set of mores. These, in total, are unique and they fully define the organization." (Hewlett-Packard 1980, p. 2)
• "Most studies agree in identifying high and positive expectations as a key to effective schooling . . . Strategies combining cooperative activity and group involvement in learning tasks with reward systems in which students at different levels of initial ability compete against their own prior performance can combine strong instructional focus with responsiveness to individual needs." (p. 10)	• "Use of work groups to achieve productivity improvement is a natural outgrowth. Since productivity itself is an indicator of the efficiency of work group performance, the dependency upon work groups to achieve productivity improvements is a logical consequence. The group and the social dynamics that bind it together exert a powerful influence on the behavior of its members. The challenge is to provide a mechanism for harnessing that energy and directing it to the improvement of work group performance." (Drewes 1982, p. 37)
• "Encouragement for students to assume responsibility for their own learning and that of others, and a general acceptance of responsibility for outcomes all seem to be characteristic of high-achieving environments." (p. 11)	• "Objective 6: To foster initiative and creativity by allowing the individual great freedom of action in attaining well-defined objectives." (Hewlett-Packard 1982, p. 9)
Teachers/Teaching	
• "Most current observers emphasize the importance of . . . teacher involvement with students as opposed to paperwork or neutral monitoring." (p. 9)	• " 'Management by wandering around' is how you find out whether you're on track and heading at the right speed and in the right direction . . . It has the extra benefit of getting you off your chair and moving around your area. By wandering around I literally mean moving around and talking to people." (Hewlett-Packard 1980, p. 10)
• "The goals of change are strongly focused and clearly defined, but multiple strategies are encouraged, and teaching staff have the autonomy and flexibility they need to discover and implement adaptive practices." (p. 11)	• "It has been our policy at Hewlett-Packard not to have a tight military-type organization, but rather to have overall objectives which are clearly stated and agreed upon, and to give people the freedom to work toward those goals in ways they determine best for their own areas of responsibility." (Hewlett-Packard 1982, p. 2)

Figure 7. Descriptions illustrative of the interrelatedness of QWL and effective school characteristics.

attendance (Miles and Neufeld 1983; Neufeld, Farrar, and Miles 1983). The parallels and commalities between these indices are shown in figure 8.

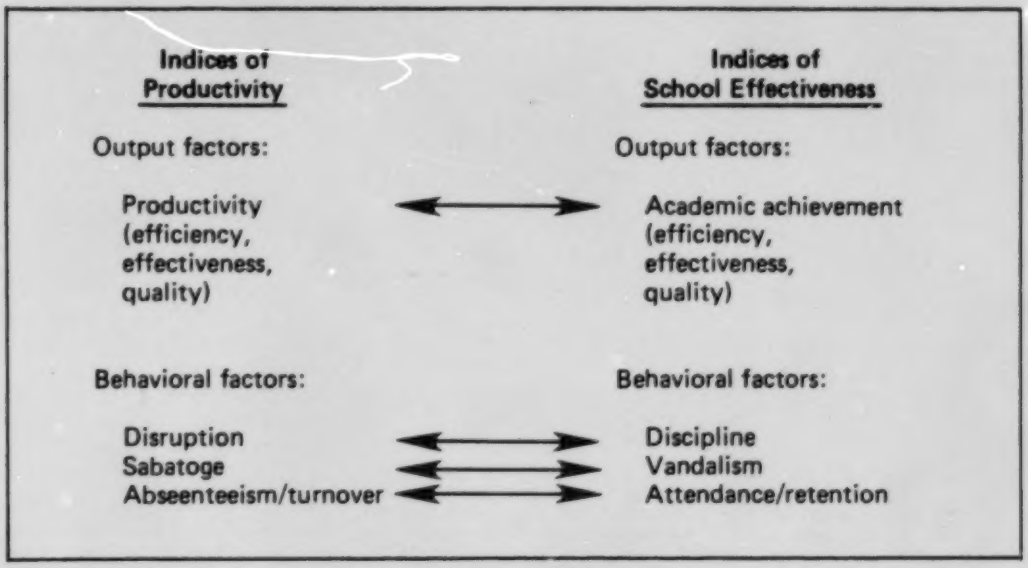


Figure 8. Similarities in indices of productivity and school effectiveness.

The underlying problem addressed by the quality of work life paradigm is the underutilization of human resources in the workplace. Underemployment means working at less than one's full capacity. While the amount of underutilization has not been measured accurately, it is thought by many to be substantial. O'Toole (1975), for example, characterizes it as a "reserve army of underemployed."

Treating workers as unthinking and uncaring parts of the production process results in their underuse and in dissatisfaction, both of which contribute to lower productivity. Quality of work life activities aim to solve problems of underemployment and underutilization of human resources. They employ a variety of approaches and techniques to tap latent expertise and creativity by involving workers and managers in problem solving and decision making aimed at "working smarter" to improve the quality of the workplace and the satisfaction of working.

The effective schools movement essentially addresses similar kinds of problems of underutilization and underemployment of students and teachers in the learning process. Treating students as unthinking and uncaring parts of the education process often results in their underuse and dissatisfaction, both of which contribute to lower achievement and lower school effectiveness.

Effective schools strive for individual excellence, which, as defined by the National Commission on Excellence in Education (1983), means "performing on the boundary of individual ability in ways that test and push back personal limits, in schools and in the workplace" (p. 12). Thus, "excellence characterizes a school and a workplace, that sets high expectations and goals for all learners and workers then tries in every way possible to help participants reach them" (ibid).

Directions for improvement. For much of our nation's history, workplaces and schools have remained essentially unresponsive to ideals of equality in opportunity and access to employment and educational experience (Adler 1982). But the last twenty years have seen substantial changes and progress in the battle toward equality of *access* to employment and education. Although the battle is not yet won, it is not yet over. Within the last ten years, it has been broadened and extended to include improvement as well in the *quality* of work and school experiences. It is hoped that the relationships between the QWL and the effective school paradigms suggest a source of additional, practical ways in which the quality of school life may be improved.

As Cuban (1983) points out, "None of the highly detailed, lovingly written descriptions of effective schools can point to a blueprint of what a teacher, principal, or superintendent should *do* in order to improve academic achievement" (p. 695). Part of the reason for this dilemma, according to Sizer (1983), may be that

> we need models of schooling that attempt several new approaches at once—a necessity, given how most of the important aspects of high school structure affect every other aspect. (p. 683)

This is one of the things the QWL paradigm offers for schools—models suggesting how multiple changes, made simultaneously, may improve complex social systems.

Surely, one of the keys to improving the quality and effectiveness of schools lies in further adaptation and refinement of the participative management philosophy, that underlies the QWL and effective schools paradigms, and in further development and application of techniques to involve students and teachers more effectively in their own improvements and in school improvements.* If QWL developments have anything to teach us, it is that the two are inextricably linked; institutional improvement must go hand-in-hand with individual improvement, and those who are closest to the work—students and teachers—are also the most knowledgeable of how improvements may be made.

Most work innovations and QWL developments hinge on greater cooperation and involvement of employees both in management and production (e.g., problems-solving groups, quality circles, autonomous work teams, and labor-management committees). For a wide range of academic subjects and tasks and for all age groups, "cooperation is superior to interpersonal competition and individualistic efforts in promoting achievement and productivity" (Johnson et al. 1981, p. 56). Given these facts, vocational educators need to considerably increase their use of cooperative learning procedures to promote greater relevance of learning and higher student achievement.

Improved involvement of learners in the process of their own learning is not only a "means" for achieving more effective schools, it is the "end" of schooling as well. As Adler (1982) so aptly put it:

> For all, schooling completed means that education has been begun, but not finished. Schooling, basic or advanced, that does not prepare the individual for further learning has failed, no matter what else it succeeds in doing. (p. 11).

QWL principles and approaches might be employed by school management, not only to improve teaching and learning, but also to improve school operations. As pointed out by

*The chapter by Herrick, Bartholomew, and Brandt (1975) in the fifth yearbook of the American Vocational Association is probably the first specific proposal to apply QWL developments to vocational education to improve the quality and effectiveness of vocational education experiences.

Jacqueline Davenport, Associate Director of the American Center for the Quality of Work Life, in this era of eroding tax revenues for schools, improving school operations is just as important as improving teaching and learning. Cooperation among administrators, teachers, clerical personnel, cafeteria workers, maintenance personnel, parents and community groups could have dramatic impact on a school's ability to retain high quality educational programs in the face of major budget constraints or cutbacks.*

By a transfer of technology, high-involvement participative schools might be developed to capitalize on what has been learned in the private sector. There is a philosophy, a set of values and models, and a whole technology, complete with a vast and growing literature and detailed training programs, that are already developed in business and industry for cooperatively and jointly diagnosing and solving problems, engaging effectively in consensual decision making, and improving the quality and effectiveness of complex social systems. The quality and effectiveness of learning and school operation can be improved by adoption of participative management models and innovations. The need is to transfer the participative management technology from the point of its discovery and development in the private corporate sector to new uses in the public educational sector. Educators must examine the new workplace practices and innovative approaches for improving the quality of work life and test their potential applications for improving school effectiveness.

Two important proposals recently have been suggested for testing the applications of participatory work practices in schools. One is described by Herrick (1983), and the other is by Wirth (1983b). Both of these proposals offer ideas and insights on the potential relationships of QWL principles and approaches to schooling. They emphasize the need to begin experimenting with the applications of QWL in schools in order to uncover and better understand what can be accomplished and how it might be done. Both of these proposals deserve serious consideration and examination by educational policymakers, administrators, and researchers. Moreover, schools may benefit by inducing other experienced researchers and practitioners in the fields of quality of work life, organizational development, management sciences, and human resource development to direct a portion of their attention, research, and experimentation toward the organization and management of effective schools.

National and state offices of the National Education Association (NEA) and the American Federation of Teachers (AFT) can play leading roles in the implementation of QWL developments and participative management approaches in schools. Together with the American Association of School Administrators (AASA), the national and state offices of the NEA and AFT should examine QWL developments in business and industry and launch a campaign to bring these developments to the attention of their memberships. Examination of QWL principles and approaches also should be encouraged at the local level, and an active dialogue should be supported between school administrators, boards of education, parents, and representatives of teacher unions. Policies should be developed collaboratively to encourage joint adaptation and experimentation with QWL developments in schools—without interfering with normal bargaining agreements or processes—in order to create a cadre of experienced facilitators and experts in school-based, QWL developments.

---

*Jacqueline Davenport, personal correspondence, 1983.

APPENDIX A

EXAMPLES OF BROADLY APPLICABLE SKILLS USEFUL IN HIGH-INVOLVEMENT, PARTICIPATIVE WORK SETTINGS

EXAMPLES OF BROADLY APPLICABLE SKILLS USEFUL IN HIGH-INVOLVEMENT WORK SETTINGS

Group Problem Solving

Interpersonal Skills

- Work effectively under different kinds of supervision (i.e., flexibility).
- Work without the need for close supervision.
- Show up on time for activities and appointments (i.e., punctuality/reliability).
- Work effectively when time, tension, or pressure are critical factors for successful performance (i.e., perseverance).
- See things from another's point of view (i.e., empathy).
- Engage appropriately in social interactions and situations.
- Take responsibility and be accountable for the effects of one's own judgments, decisions, and actions (i.e., responsibility).
- Plan, carry out, and complete activities at one's own initiative (rather than be directed by others) (i.e., diligence/initiative).
- Speak with others in a relaxed, self-confident manner.
- Initiate task-focused or friendly conversations with another individual.
- Accomplish cross-training, retraining, and upgrading activities effectively.

Group Process Skills

- Work cooperatively as a member of a team.
- Get along and work effectively with people of different personalities.
- Explain persuasively the logic or rationale underlying judgments, decisions, and actions arrived at by a group or a team to which you belong to (i.e., group participation/responsibility).
- Coordinate one's own tasks and activities with those of others.
- Instruct or direct someone in the performance of a specific task.

- Demcnstrate to someone how to perform a specific task.
- Assign others to carry out specific tasks (i.e., delegating responsibility)
- Initiate and draw others into task-focused or friendly group conversations.
- Join in task-focused or friendly group conversations.
- Plan and convene group meetings.
- Lead and manage group meetings.
- Lead a group to resolution of disputes or conflicts in the views, opinions, or positions among its members in order to achieve consensus on decisions or actions.
- Follow established procedures for group participation and decision making.

Problem-solving Skills (tolerance of and dealing with uncertainty/ambiguity)

- Recognize or identify the existence of a problem, given a specific set of facts (i.e., an anomaly, ambiguity, uncertainty).
- Continue to function effectively in the face of ambiguity or uncertainty.
- Ask appropriate questions to identify or verify the existence of a problem.
- Enumerate the possible causes of a problem.
- Formulate alternative descriptions or statements relating a problem to its possible cause.
- Identify important information needed to solve a problem.
- Generate or conceive of possible alternative solutions to a problem.
- Describe the application and likely consequences of possible alternative problem solutions.
- Compare the application and likely consequences of alternative problem solutions and select a solution that on-balance represents the best course of action to pursue.

Decision-making Skills

- Estimate the potential likelihood of some event's occurrence and probable consequences.
- Project resource requirements for alternative scenarios.
- Determine relevance and quality of available data and information.
- Identify information that is needed and that could be located or generated.

- Delineate values and assumptions underlying various options.
- Use appropriate process or choice models in order to facilitate making a decision.

Planning Skills

- Set priorities of or the order in which several tasks will be accomplished.
- Set the goals or standards for accomplishing a specific task.
- Enumerate a set of possible activities needed to accomplish a task.
- Determine how specific activities will assist in accomplishing a task.
- Select activities to accomplish a specific task.
- Determine the order of the activities or step-by-step process by which a specific task may be accomplished.
- Estimate the time required to perform activities needed to accomplish a specific task.
- Select the materials, tools, equipment, or other resources to perform the activities needed to accomplish a specific task.
- Periodically revise or update activities and plans for accomplishing a specific task.

Communication Skills

A. **Words and Meanings**

- Use plural words appropriately in writing and speaking.
- Use appropriate contractions and shortened forms of words (by use of an apostrophe) in writing and speaking.
- Use appropriate abbreviations of words in writing and speaking.
- Use words appropriately that mean the same thing as other words but are spelled differently (e.g., big, large; tall, high).
- Use words correctly that sound the same as other words but that that have different meanings and spellings (e.g., dear, deer; meat, meet).
- Use words appropriately that are opposites of one another (e.g., white, black; up, down).
- Use good word choices in writing and speaking.
- Add appropriate beginnings and endings to words to change their meaning (e.g., work, rework; change, changeable).

- Punctuate one's own correspondence, directives, or reports.

B. **Reading**

- Gather information or data from books, manuals, directories, or other documents.
- Read graphs, charts, and tables to obtain factual information.
- Read short notes, memos, and letters.
- Read forms.
- Look up the meaning, pronounciation, and spelling of words in a standard dictionary.
- Look up names, numbers, and other information (e.g., dialing instructions) in a telephone directory to make local and long-distance calls.
- Review and edit other's correspondence, directives, or reports.

C. **Writing**

- Compose written correspondence, directives, memos, or reports (i.e., connected discourse).
- Write sentences or phrases to fill out forms accurately.

D. **Speaking**

- Speak fluently with individuals and groups.
- Pronounce words correctly.
- Speak effectively, using appropriate eye contact, posture, and gestures.

E. **Listening**

- Restate or paraphrase a conversation to confirm one's own understanding of what was said.
- Ask appropriate questions to clarify another's written or oral communications.
- Attend to nonverbal cues, such as eye contact, posture, or gesture, for meanings in others' conversations.
- Take accurate notes from spoken conversations.

Reasoning Skills

- Generate or conceive of new or innovative ideas.
- Try out or consciously attempt to use previously learned knowledge and skills in a new situation (i.e., make a transfer hypothesis—"I wonder if situation B is somehow or other related to or like situation A, and if so, can I use this knowledge or skill in this new situation?").
- Explain the main idea in another's written or oral communication.
- Recall ideas, facts, and other information accurately from memory.
- Organize ideas and put them into words rapidly in oral and written connected discourse.
- Interpret feelings, ideas, or facts in terms of one's own personal viewpoint or values.
- State one's point of view, opinion, or position.
- Defend one's opinion, point of view, or position.
- Distinguish between fact and opinion in one's own and in others' written and oral communication.
- Compile one's own notes from several written sources into a single report.
- Compile ideas, notes, and materials supplied by others into a single report.
- Carry out correctly written or oral instructions given by another.
- Observe another's performance of a task to identify whether the performance is satisfactory or needs to be improved.
- Ask questions about another's performance of a task to identify whether the performance is satisfactory or needs to be improved.

Organization and Management

Business Economics

- Estimate profit margin and primary production expenses for the company.
- List primary governmental regulations affecting company.
- Delineate critical factors affecting company productivity.
- Discuss international, national, or local (whichever is most appropriate) economic conditions as they affect company stability.
- Make cost-savings suggestions for improvement.

- Estimate savings due to company from various changes in process.
- Discuss free-enterprise, capitalist, socialist, and communist, economic/governmental modes of operation.

Business Operations

- Name organizational functions within the company (i.e., manufacturing, marketing, finance, personnel, etc.) and each of their goals.
- Discuss the nature of the relationship between functions.
- Develop organizational charts showing alternative ways of organizing.
- Explain concepts of centralization and decentralization, division of labor, informal and formal organization.

Management

- Name and briefly describe the major management theories (e.g., Theory X and Y, Managerial Grid).
- Delineate possible factors within an organization that may affect performance and productivity.
- Describe different forms of communication within an organization and provide examples.
- Discuss the concepts of power, control, authority, and delegation.
- Analyze functions within one job or operation.
- Describe factors affecting change process within an organization and discuss potential blocks or constraints to the implementation of change.
- Name criteria upon which work performance could or should be evaluated; discuss appraisal processes and purposes.
- Apply career development concepts to individual planning.

Statistical Quality Control

- Define concepts of universe, sampling, variability, random selection, central tendency, dispersion, correlation, standard deviation.
- Define specifications, defects, tolerances, control limits, inspection, quality control.
- Develop mock checksheets, histograms, cause-and-effect diagrams, pareto charts, milestones or timeline charts, bar graphs, pie charts, scatter diagrams, pictographs.

- Develop a control chart and describe its various components and purpose.
- Complete the following types of exercises:
  - add, subtract, multiply, and divide whole numbers, fractions, and decimals;
  - solve word problems;
  - compute percentages, averages;
  - use a calculator; and
  - perform metric conversions.

Introduction to Quality of Work Life

- Learn definitions of QWL concepts and approaches.
- Learn underlying QWL philosophy and rationale.
- Learn about QWL history and development.
- Learn about QWL methods and techniques.

APPENDIX B

SUMMARIES OF SITE VISITS TO FIRMS

SITE VISIT SUMMARY—A DIVERSIFIED MANUFACTURING FIRM

Background Information

This company is a diversified manufacturing corporation using traditional and nontraditional (i.e., robotics and computers) manufacturing processes.

The company employs approximately 38,000 employees. Ninety-eight percent of the salaried personnel are nonunion, although the majority of hourly workers are unionized. Employees belong to all age categories, and recently hired employees are better educated. Almost all employees are high school graduates, and for most it is not their first job. Employee skill level varies.

Work Improvement

The primary work improvement effort in practice at the company is quality circles. At this point, quality circles are used only with salaried personnel, but plans are to incorporate them into the hourly paid areas.

Implementation

The company's long-standing philosophy of employee relations is formally stated in a written policy. The policy recognizes that the quality of employee relations ranks in importance with other managerial criteria, such as product quality, cost control, and efficiency. The heart of the policy is the effort to treat all employees fairly and equitably, with courtesy and respect, and to create an atmosphere of free and open two-way communication. Members of company management meet with employees at each plant to provide them with information about the industry and the company, and to listen to their suggestions and answer their questions.

The company has established a communications program for salaried employees, which provides a confidential, upward communications system for individuals to air any problems or concerns. Employee comments, questions, or concerns are submitted on special forms to a program administrator and forwarded anonymously to the appropriate area for response. It also has an in-house assistance program designed to help employees and their families cope with a variety of personal problems.

The mission of the management and training division is: "To develop individual managers and management teams who, through the optimal use of human resources, ensure the short- and long-term profitability of the company." For some time, the company has been engaged in quality circle activities. This movement was not motivated by crisis, but was another step to promote the philosophy of the company.

All of the quality circles tend to be similar, but each quality circle works on a different set of problems. The idea behind the QWL movement has continued to be "go slowly and set up

correctly." Plans are to increase the QWL projects, and to begin to include hourly employees in the process.

The company, overall, is shifting from Theory X to Theory Y. Each subcompany varies in the extent to which it has moved toward Theory Y characteristics. Some of the new plants are using more technology and have "flat" organizations.

The QWL efforts have been accepted throughout the organization. Although there are no formal evaluation procedures at this time, the results of the QWL projects have prompted additional emphasis in this area. The major barrier to be overcome in implementing the QWL efforts is time. The work improvement changes have generally been accepted at all levels at which they have been implemented.

Specific Practices

Quality of work life and job enrichment, per se, have been under development since the mid-1970s. These programs focus attention on building sound management practices through:

- Good employee relations
- Good communications
- Competent middle managers in all departments
- Strong dedicated first-line supervisors
- Training and development of supervisors and managers

The training department works with first-line supervisors to teach them how to train the people on the line to be able to understand and communicate the problems that occur in the shops. They are moving the workers toward a more important role in the operations of the facility, teaching them to be involved in problem solving and decision making.

Information is shared with workers in a variety of ways. These include blackboards in each department, newsletters, staff meetings, and visits by company management to each plant.

No recruitment is necessary, since more persons walk in from the street and apply than positions become available. No incentive programs are used. Pay raises with salaried employees are determined by the type of money available for raises, but merit is used to determine the amount given to each employee. Promotions vary by departments, but with management it is usually from within. Unionized employees go through the usual steps to secure pay raises.

Skill Requirements and Training Needs

The skills needed to participate effectively in this company's work improvement efforts, as identified by those interviewed, include the following:

- Communication skills (writing and speaking)
- Group process skills

- Understanding the importance of job
- Decision-making or problem-solving skills
- Assertiveness
- Flexibility
- Understanding of quality control, self-directed goal setting, and planning skills

Problem solving and decision making were listed by all persons interviewed.

Those interviewed generally felt that vocational education programs should be spending as much time on human development skills as they are spending on technical skills. As one person stated, "No one is ever fired because of lack of technical skills, but for lack of people skills." Interviews further indicated that schools should teach students about caring, leadership, responsibility, assertiveness, and the ability to communicate effectively both in writing and speaking.

Those interviewed stated that both process and content should be changed in schooling. They voiced some concern that schools use too much media and do not require enough writing. They suggested that vocational programs be set up so that students learn the importance of being part of a team and understand their own roles and responsibility to the team.

SITE VISIT SUMMARY—BARNES HOSPITAL

Background Information

Barnes Hospital in St. Louis has been mid-America's referral center since the hospital opened its doors in 1914. In 1982, both *Family Circle* and *Money* magazine listed Barnes Hospital as one of the outstanding teaching hospitals in the country.

Barnes Hospital is a nonprofit, 1,208-bed teaching hospital associated with Washington University School of Medicine. In 1982, the hospital provided 359,000 patient days of service and its outpatient departments handled 126,000) patient visits.

Barnes Hospital's five thousand full- and part-time employees are nonunionized. At least one-half to two-thirds of the employees come from two year vocational/technical backgrounds, particularly those employees offering nursing, therapy, and other support services.

Work Improvement

Four work improvement activities are in use at the hospital. Three have been initiated by management, and the fourth is a quasi-legal requirement for hospital accreditation.

Quality control circles (QCCs) are directed at employee development, whereas, management development focuses primarily on skills development. Quality of work life efforts are still evolving, and thus they are not yet fully implemented. Quality assurance activities are directed toward problem identification and problem solving.

Implementation

Quality control circles were begun in 1980 in response to several factors. The shortage of registered nurses exacerbated the problem of recruiting and retaining key staff. During the same period, the hospital completed a major renovation and expansion program of its physical facilities. The interest of management was redirected toward regarding employees as resources who, with proper attention to human development, could provide the greatest potential for productivity growth.

Hospital administration began to explore human development techniques, including motivation and incentive programs. The director of training attended a conference on QWL in St. Louis, and had a consultant from the conference come to the hospital and talk to the hospital administration. The administration and the training departments decided to use a quality circle approach because it could be developed by and for the employees.

The QCC effort is accepted throughout the organization, and the only resistance has been because of decentralization. Sixteen departments and five hundred employees are now involved in the QCC effort.

Barnes Hospital is considered a leader in the field of work improvements. Hospital personnel staff consult with other organizations, write articles, respond to requests for research, and have developed a manual for use in other service organizations that may be used when starting quality control circles.

An attitude survey is used by the department of training to evaluate the effectiveness of the QCC effort. A pre- and post-attitude survey is given to those participating in the QCC, as well as to nonparticipants. Those involved in QCC show more job satisfaction and a stronger commitment to the job, which increases employee retention. Retraining costs, for example, have been avoided. The hospital plans to continue expansion of the QCC effort.

The problems that have been identified after two and one-half years with QCC are (1) keeping enthusiasm, (2) developing ownership by the circle, (3) coping with economic factors, and (4) adjusting to shifts in management style.

Specific Practices

The QCC is usually led by the first-line supervisor, but in a few instances it is run by the department head. All participation in QCC is voluntary, and when asked by the circle, physicians attend the meetings as resources to the circle.

Training for the QCC efforts has been from the top down. Materials have been developed to assist in establishing the QCCs. The following implementation guidelines have been developed to ensure successful QCC efforts:

- The motivation for starting the program must be an employee development program with the philosophy that "people count."
- The QCC must be voluntary, with support from the top.
- Training must take place at all levels, so that all persons may make intelligent decisions as to whether they want to become involved.
- They must be trained in the QCC techniques.

Skill Requirements and Training Needs

The skills needed to participate effectively in the QCC work improvement efforts at Barnes Hospital, as identified by the director of training, fall into the following major areas:

- Problem-solving processes
- Techniques of QCC
- Group dynamics
- Planning processes (MBO—management by objectives)

Specific QCC training is required to initiate work improvement efforts.

Ninety to 100 percent of the jobs within the hospital require greater skills, today. Skill training is provided by programs offered inside the hospital. In-hospital skill training is often provided by the specific department.

Individuals interviewed at Barnes Hospital say that schools fail to teach basic communication skills adequately including reading, writing, listening, and an understanding of the personal skills required to hold a job. The schools need to demand more from students and to expect their best efforts.

Those interviewed believe that vocational education should establish a closer link with business, industry, and labor, and should stop training students for jobs that are becoming obsolete. The most important concept that should be taught by vocational education is the need for "lifelong learning."

SITE VISIT SUMMARY—COLUMBUS AUTO PARTS COMPANY

Background Information

The Columbus Auto Parts Company (CAP) is a manufacturing firm located in Columbus, Ohio. Founded in 1912, CAP "designs, engineers, and manufactures steering linkages, suspensions, and other transportation components." It serves as a supplier to original equipment manufacturers (e.g., Ford, GM) and also provides replacement parts. Traditional manufacturing technology processes are used (there are no robotics, for example).

CAP employs approximately 110 salaried individuals (management and clerical), 500 hourly employees (union members), and has about 50 on layoff. The median employee age is thirty-seven and the average experience is fifteen years with the company. Employees' skills include engineering backgrounds and skilled trades areas, such as tool and die making, measurement, instrumentation, and laboratory technology.

Work Improvement

The primary work improvement efforts in practice at CAP are (1) quality circles and productivity teams, (2) the Improshare Productivity Sharing Plan*, and (3) a statistical process control system. These three efforts have also entailed a suggestion system, expanded training and responsibility in numerous areas, and improved relations between management and unions.

Implementation

About 1979, CAP began to feel the impact of the recession on the auto industry. Management and workers alike recognized the need for change. After much discussion among everyone and voting by union members, the Improshare Productivity Sharing Plan was adopted in an effort to get away from the old piecework incentive system. It includes a formal suggestion system for improvements. It was also determined that, to enable workers to contribute most effectively to improvements in productivity and quality, greater skills in communication techniques were needed. "Productivity circles" were initiated by management, they operated effectively for a short period of time, and then began to disintegrate. The company renewed its efforts, studied quality circle concepts more thoroughly, and reinitiated voluntary quality circles, with a heavy emphasis on training. Their purpose is to give employees more of an opportunity to solve problems in their own work area, improve quality, and increase productivity.

At the suggestion of some of their customers (e.g., Ford and GM), CAP has most recently moved into the statistical process control system. This system transfers more of the quality control responsibility to the individual worker. Self-inspection of work becomes the norm rather than inspection at the end point of the manufacturing process. As the saying goes, "You can't inspect quality into a product." A great deal of effort has gone into training in this area.

---

*Improshare is a financial bonus plan for sharing profits with workers and for encouraging worker responsibility.

These work improvement efforts are administered in different fashions, but key people are involved across the activities. For example, the union coordinator for quality circles is also the Improshare representative. The director of training coordinates the quality circle activities and the industrial engineering manager coordinates Improshare.

All employees are involved in Improshare. There are four quality circles with approximately seven members each. There are plans for expansion of the quality circles and for the development of productivity teams, which will essentially be quality circles without the heavy training emphasis on group process, data collection, and presentations to management. The productivity teams are one way of including those workers who feel less comfortable with the reading, writing, and math requirements of the quality circles.

All employees are involved in the statistical process control training, although at different levels. There is also much discussion with the unions about the switch to self-inspection to ensure that no inspectors lose their jobs as a result of the change.

The work improvement changes have generally been accepted well at all levels. Although some individuals are not enthusiastic, they do cooperate. A key factor is the fact that quality circle participation is voluntary. Others may take the "wait and see" attitude and choose to join later if there is an opening.

The company recognizes the payoff of the work improvements. Even the time spent in quality circle meetings is not perceived as a cost, because management feels the workers become more productive for the remaining thirty-nine hours a week and more than make up the difference. In addition, most of the ideas presented to management by the quality circles have been approved and implemented. Each circle has an annual savings figure based on its work, but those data are not centralized.

Specific Practices

Within the quality of work life literature, a number of characteristics of companies that stress participative management and high involvement have been identified. This section relates how CAP has developed in these specific areas.

CAP has six levels of hierarchy: president, vice-presidents, managers, superintendents, supervisors, and general employees. It is unlikely the company will flatten this structure in the foreseeable future. About 9 percent of all employees are considered management.

Job enrichment, per se, has been limited. However, there has been movement toward self-inspection of work, and job-rotation and cross-skilling (training in the performance of several jobs) within departments is common.

Work is organized by functions, not by teams that produce a final product. There are specialized departments for forging, machining, and assembly, for example. However, no one group of workers sees a product from beginning to end, primarily because of technological process requirements.

The individual workers participate in decision making by using consensus-building techniques. They have input into the decision process, but management still makes the decision. The term *communicative management* is used to describe the process at CAP. They feel this is less threatening to the managers.

Workers communicate with management in a variety of ways:

- The formal suggestion system process that is part of Improshare.
- Quality circles and productivity teams
- The president has open meetings with individual departments and any subject is appropriate for discussion.
- An informal open-door policy encourages discussion with one's supervisor.

Management information is shared with workers on such issues as productivity, new business, reasons for lay-offs, and suggestions from employees that have been approved.

Personnel practices tend to be traditional in the areas of recruitment, hiring, promotion, and pay. Layoffs have been necessary over the past several years.

Cooperation between the union and management appears to have been effective. A Labor-Management Executive Committee meets regularly, and representatives from the union oversee all of the work improvement efforts. Improshare is part of a formal labor agreement, whereas the quality circles were formed by informal agreement (since they are voluntary). The union's perspective on the work improvement efforts is supportive and positive. Union membership recognized the need for change several years earlier, as did management.

Training is offered in both technical skill areas and in areas related to work improvement efforts. Some training is provided internally by staff or with the use of consultants; other training is coordinated with the local postsecondary technical institute, and tuition reimbursement is available.

Skill Requirements and Training Needs

The skills needed to participate effectively in CAP's work improvement efforts, as identified by the director of training include the following:

- Problem solving and decision making
- Data collecting
- Simple statistical analysis
- Cost education (e.g., what it costs to make a product, relevance of being to work on time, basics of economics)
- Group process skills
- Goal setting and planning skills

CAP employees believe that it is appropriate for schools to develop skills in these areas, and that companies should only do the training specific to their firm. Those interviewed felt that employee skills in QWL areas would be useful to a company, even if it were not involved in work improvement efforts.

A reluctance and fear on the part of some employees to become involved in work improvement efforts requiring new learning and/or the use of reading, writing, and math is apparent to the director of training and others. Some workers have been out of school for twenty or thirty years, but even some younger workers apparently feel reluctant to engage in a new learning situation. Individuals from the union and from management feel that schooling could be improved to help people develop a better attitude toward trying to learn new skills and ideas.

Interviewees felt that schools should teach people about the world of work in general. Specifically, they said that employees should not have the attitude that the company owes them a living, and employees need to know more about how profits and losses work in a firm.

They also wish that the training they are currently receiving in their quality circles had been included in the curricula when they attended school—whether a vocational program or not. The QCC training includes brainstorming, data collection, cause-and-effect models, group process techniques, and how to make presentations. These topics are new to most of the participants, but presented simply, they catch on quickly.

When asked how schooling should be changed the director of training, who also teaches Introduction to Business at a local technical college, responded that both process and content could be changed to give students a "hands-on" feeling with QWL subjects (e.g., problem solving, data collection, group process). He suggests using case studies, seminars, self-learning and group-learning activities, as well as having the students actually conduct problem-solving sessions in school—all to make education more realistic.

SITE VISIT SUMMARY—CUMMINS ENGINE COMPANY, INC.

Background Information

Cummins Engine is located in Columbus, Indiana, and manufactures and sells a diversified line of in-line and V-type heavy-duty diesel engines, components, and replacement parts in worldwide markets. Production began in 1922, and currently about eighteen thousand persons are employed worldwide by Cummins. There are two unions, which are Cummins-specific. Many high-technology process are used (e.g., lasers, robots, computerized quality control). Most employees are involved in heavy production activities.

Work Improvement

Cummins has been trying for over a decade to implement some very innovative work improvements. These changes have been introduced primarily in various new plants and have built upon past experiences. Currently, efforts are being initiated in the Columbus plant (the central plant, which is the oldest) and throughout the worldwide operations. These efforts stress a whole new management perspective and emphasize statistical quality control. Cummins is also making increasing use of the business/team concept, problem-solving teams, and the practice of sharing business information with employees.

Implementation

Around 1971, Cummins opened a new plant in Charleston, South Carolina. In response to the "blue collar blues" phenomenon, management brought in Frederick Herzberg, an expert in work organization and job satisfaction, to consult in the design of their new plant. Enriched work and broad jobs were the goal. All was not perfect at the Charleston plant, but Cummins learned from the experience and improved upon the concept at its Jamestown, New York, plant which opened in the mid-1970s. At Jamestown the team structure was used and greater decentralization was the mode of operation. In plants opened since then, Cummins has continued to provide greater responsibility to each worker and, as a result, has needed fewer people in management positions.

Since the recession of the early 1980s and increased competition from the Japanese, Cummins is determined to change operations more in all its plants. This is always more difficult in an existing, older plant than in a new one. By looking at the kinds of changes desired (e.g., improvements in quality, reduction in costs, and improved worker morale) and the types of programs they thought would bring about these changes (e.g., problem-solving teams, business/team concepts, long-term visioning) the company management concluded that all staff, including management, needed training in statistical quality control. All staff also needed a greater understanding of business economics.

Specific Practices

Cummins makes use of a number of types of work improvements. All may not be in place in all locations, but each improvement is in place or is in the process of being implemented in at least one location. The improvements are as follows:

- Visioning—a process whereby management comes to a consensus on the philosophical values and goals for the organization.
- Business/team structure—each area within a plant has its own accounting, planning, and other support functions. What was formerly a division now runs as a single entity in the minds of all concerned.
- Problem solving teams—groups of people from the shop floor work together to solve problems.
- Enriched jobs—individuals who formerly only operated a machine now also maintain the equipment and inspect the quality of the work produced.

Cummins is also trying to change the way managers and workers think, encouraging people to feel a connection with the customer, to be willing to take a risk to complete the needed work, and to understand that if the process is right, the product will be right.

Skill Requirements and Training Needs

The Cummins director of training has several suggestions for how schooling should be changed to help graduates adapt better to the new management styles. He feels that the connections between various subjects in the curricula should be made more apparent, and that "fragmentation" is not useful. He feels there should be less emphasis on "the right answer" and more on the process to obtain the answer. It is important for workers to be able to deal with ambiguity. Students should be encouraged to work together, not always on an individual basis; that is, they should learn to become less competitive and more cooperative. Schools should also enable students to enjoy learning and to value life long learning.

In one new plant that uses a wide variety of work improvements, Cummins considers interpersonal skills (e.g., individual and group basics), interest in teaching and learning, and following directions as skills and attributes important for hiring purposes. The company is making a concerted effort to teach employees both statistical quality control and business economics. Cummins management feels it is critical for the company and for its employees to have these skills.

SITE VISIT SUMMARY—GENERAL MOTORS

Background Information

General Motors (GM), founded in 1908, is the world's largest producer of transportation equipment. GM's stock is publicly traded worldwide. With its central headquarters in Detroit, GM has plants all over the world that produce automobiles, trucks, and engines. High-technology processes are used in addition to more traditional technologies (e.g., robotics, computerized quality control).

General Motors employs about seven hundred thirty thousand persons. Most plants are unionized and most hourly workers are represented by the United Auto Workers (UAW).

Work Improvement

GM has a quality of work life program in place that began in the early 1970s. Currently, almost two-thirds of GM plans and staff are involved with QWL activities. Some plants have advanced much further with the concept than others, and each plant is encouraged to interpret QWL as is best fitting for its situation. Therefore, different plants use varying QWL techniques. GM has internal QWL consultants, however, who work with the different plants to assess needs and design programs.

Quality of work life activities at GM are described as a process, rather than a program. Their purpose is to enhance the dignity of *all* employees—managers and workers—by involving them in decisions affecting their jobs. One GM representative commented that the goal of the QWL program focuses on worker involvement amd attitudinal change among all employees, not on quality control.

Implementation

The basic principles of the QWL effort as a process at GM are as follows:

- Develop a broad and flexible understanding of how organizations function, change, and develop.
- Start where the organization is, not where people think it is.
- Use measurement/research as a source of information and as a developmental strategy.
- Involve in the developmental process those who are most likely to be affected by any significant changes.
- Ability to influence decisions and the decision-making process must be an integral part of the involvement process.

- Resources must be provided to support developmental strategies and to ensure their continuity. ("GM's Quality of Work Life Efforts" 1978, p. 22)

Programmatically, three key approaches have emerged and continue to be pursued simultaneously as a result of the knowledge and experience gained to date. These are as follows:

- Employee-management cooperation, with particular emphasis on union-management cooperation where the employees are represented by a union for collective bargaining purposes
- Innovations in the workplace
- Measurement (General Motors 1981, p. 2)

Specific Practices

Although plants vary, the QWL practices used by GM include the following:

- The business/team concept
- Parallel hierarchy organization
- Employee participation groups (EPS)
- QWL survey
- Sociotechnical systems planning for new plants
- Joint committees and an agreement between management and the United Auto Workers

Skill Requirements and Training Needs

The skills that GM's QWL consultants feel workers need to develop to participate effectively in QWL activities include the following:

- Brainstorming
- Problem solving
- Communication
- Teamwork/group development, and how groups function and perform
- Statistical quality control
- Leadership
- Conducting meetings

One director of trainers commented that all employees need the skills and knowledge usually taught in college-level leadership courses. He also indicated that, because most people do not have skills needed for working effectively in groups, GM provides training in group process skills to all of its employees. Schools should give greater emphasis to such skill areas as the following:

- Interpersonal skills
- Communication skills
- Group process skills
- Team-building skills
- Problem-solving skills

GM's training for employee participation includes—in addition to company-specific information—attention to adult learning styles. The specific training is conducted through group involvement and includes learning how to assess the dynamics and success of work groups.

Trainers at GM indicate that they see a real need for all workers in their company to understand management functions, organizational practices, and union operations. One individual who was interviewed commented that students will benefit greatly if teachers know more about business competition and about how business and industry is managed and operated.

SITE VISIT SUMMARY—HEWLETT-PACKARD COMPANY

Background Information

The Hewlett-Packard company (HP) is a major designer and manufacturer of precision electronic equipment for measurement, analysis, and computation. Headquartered in Palo Alto, California, Hewlett-Packard is a $4.9 billion company that was founded in 1939. It produces over five thousand products, and employs about seventy-two thousand people around the world. The Fort Collins, Colorado, plant was visited for the purpose of this case study. It has about three thousand nonunion employees and produces desktop computers and microprocessor chips.

Work Improvements

Work improvement has been a long-term continuous concern of the company. However, efforts have recently intensified because of growing Japanese competition in the computer field.

The "HP Way" is well understood and accepted throughout the company. The HP Way is "the policies and actions that flow from the belief that men and women want to do a good job, a creative job, and that if they are provided the proper environment they will do so. . . . Coupled with this is the HP tradition of treating each individual with consideration and respect, and recognizing personal achievements" (Hewlett Packard 1980).

The HP Way, as a concept, has been with the company since its inception. The company's more recent attention to quality was discussed in a *Wall Street Journal* ("One Company's Quest" 1983) article, in which John Young, president of HP, explains how the company decided on the goal of a ten-fold reduction in the failure rates of its products in the 1980s. The company determined that "doing it right the first time" is much less costly than "find it and fix it," their former philosophy.

Specific Practices

HP has developed a large number and variety of work improvements.Quality circles have been operating in some areas, but "work centers" (a segment of a process area or manufacturing unit, with measurable input/output parameters, that can operate as a small business) have now become HP's version of quality circles.

Management by objectives is practiced for each job at HP, and each worker's activities are planned and reviewed regularly by workers and supervisors. Managers are considered to be resource people and operate in a less directive fashion than more traditional managers. "Management by wandering around" is considered to be standard operating procedure.

Informality (e.g., first names, no fancy position titles) and egalitarian perquisites are the norm. Merit is the prime consideration for promotion; seniority doesn't count. Effective performance is

required for continued employment, and promotion to higher positions primarily is from within.

In hiring new employees, HP looks for self-starters with good communication skills. It seeks individuals who are out going, team-oriented, and who can ask for and offer help and assistance.

A profit-sharing plan was initiated in the 1940s, and all employees share in company profits distributed every six months.

HP is a high-involvement, participatory management company. Section teams sometimes meet together in the company cafeteria for breakfast and discuss the work of the section. HP does everything possible to encourage total employee participation in work improvement. A highly positive atmosphere exists.

Problem solving related to quality improvement and productivity is widespread; charts and graphs depicting quality/productivity developments over time line the walls of every section throughout the plant. These graphs are computer-generated from a companywide process database. HP has collected a great deal of evidence that its changes save money and improve quality. All aspects of company performance are shared with workers.

Skill Requirements and Training

HP personnel officials identified the following skills needed by workers to participate effectively at HP:

- Statistical quality control techniques
- Time management techniques
- Group process and presentation skills
- Problem solving
- Interpersonal skills
- Flexibility
- Solid basic skills, especially math and science
- Business operations and economics
- International business/economics

They feel that the current weaknesses of schools in preparing people who might go on to work in the new management-type companies included the following:

- Lack of basic skills and proficiency
- Lack of math and science skills
- Inflexibility, unwillingness to change

- Lack of understanding of competitive nature of business and industry
- Lack of attention to interpersonal skills

HP personnel commented that, in general, schools could better prepare students for work in high-involvement, participative companies such as HP by placing less emphasis on theory and more emphasis on practical applications, increasing cooperative learning programs with businesses and industries, and giving greater emphasis to business economics and to the organization and management of businesses.

SITE VISIT SUMMARY—KEITHLEY INSTRUMENTS, INC.

Background Information

Keithley Instruments was founded in 1946 in Cleveland, Ohio, by Joseph Keithley, who is currently chairman of the board. Keithley "designs, manufacturers, and markets electronic measurement instrumentation for worldwide markets." A typical product is the digital multimeter, which is used in the service and design of sophisticated electronic and analytical equipment. Highly technical work processes are used, as well as more traditional work, such as assembling.

About four hundred employees work for Keithley. There is no union. Employees are primarily professional or semiskilled in their previous training. Many bring an electronics background to the firm.

Work Improvement

Work has been changed in numerous ways at Keithley within the past few years in an attempt to improve quality and performance. Work has been reorganized so that teams produce a final product, rather than all workers in one group doing the same function. The teams meet together regularly to solve problems and exchange ideas. They are encouraged to provide feedback to each other as necessary when quality is inadequate.

The team concept is being expanded throughout the organization. The employee handbook states, "We believe the interests of the company and of Keithley employees are bound together. We will succeed as a team working together for our mutual interests and progress."

Flextime is employed. A grievance procedure exists. Internal promotion is preferred. Job security is a high priority of management. Quarterly meetings of all employees are used to share market information, profit-and-loss data, and upcoming changes. The proportion of managers to nonmanagement staff has been reduced.

Implementation

In 1979, difficulties in the area of costs, scheduling, quality, employee satisfaction, and capacity to grow were acknowledged at Keithley. A number of correction processes were tried. Eventually, performance goals were defined and a corporate philosophy was developed. Finally, on a trial basis, the manufacturing of one new product was organized in a holistic team fashion. Previously, all work had been done according to functions (e.g., calibration, testing, assembling).

The team concept gives ownership of the product from beginning to end to the producing group. The results are positive. All manufacturing has been shifted to this style. Extensive training is provided to team members and an effort was made to keep employees informed at all times of any changes. According to human resources personnel, worker adjustment was very good, due

primarily to the intensive communication and training that accompanied the transition.

Hard measures of the effectiveness of the work improvements have been an integral part of the change process at Keithley. Data are maintained on such factors as inventory levels, absenteeism, overhead and labor costs, warranty repair rates, and production time per unit. All these factors influence a company's performance and all improve when work improvements are implemented.

The human resources area is perceived as playing the catalyst role for changes at Keithley, but the quality of work life activities are seen as a part of the overall organization. The team concept is being expanded to such areas as marketing and research and development, and it is hoped that the idea will become part of Keithley's organizational style. The corporate philosophy states, "For Keithley Instruments, Inc., to achieve its goals and plans over the short and long run, we must manage well all resources entrusted to us. The most important resource is people."

Skill Requirements and Training Needs

The best way to look at the needs of workers for training at Keithley is to look at the training the company provides. This training stresses:

- Business economics
- Communication/feedback/listening
- Learning process
- Goal setting
- Problem solving
- Creativity
- Group process

Those interviewed feel that these subjects should be included in vocational curricula, too.

The skill emphasis thought to be appropriate for vocational education programs includes: (1) basic skills (e.g., reading, writing, and computation), (2) occupational area skills (e.g., knowledge of materials, tools, and processes common to a group of related occupations), (3) job-specific skills (e.g., technical and specialized skills for a particular job), and (4) high order skills (e.g., reasoning, planning, problem-solving, decision making).

The general concerns about schooling held by the individuals interviewed at Keithley are that all people's experiences prior to working at their type of firm are individualistic in nature, rather than group or team oriented. Therefore, most new arrivals at Keithley have inadequate skills in working in groups. For example, few people feel comfortable giving negative or even constructive criticism to a co-worker who has produced faulty materials.

Another general concern is that school financing is inadequate for these training needs. That is, (1) schools are not getting enough priority; (2) that federal, state, and local taxation is crucial; and (3) funding should be more equitable.

SITE VISIT SUMMARY—MONSANTO

Background Information

Monsanto is a multinational industrial company with headquarters in St. Louis. Founded in 1901, it has investments today in 166 manufacturing plants, laboratories, and technical centers in twenty nations and sells its products in one hundred countries. Among these products are chemicals, agricultural products, synthetic fibers, electronic materials, industrial process controls, and other capital equipment.

Monsanto has approximately fifty-three thousand employees, averaging three hourly workers to one salaried worker. The company employs persons from all backgrounds in both union and nonunion plants.

Many plants now use highly sophisticated techniques that require a great deal of employee retraining. When hiring, Monsanto looks for persons who are interested in working, who are self-motivated, who have had a recent formal or informal learning experience.

Work Improvement

Although many work improvement efforts are in practice at Monsanto plants, the efforts vary from plant to plant. These efforts include the flattening of the organizational structure, increased worker input, changes in leadership style, management training, new forms of communication, changes in job assignments, training workers in group problem solving and troubleshooting, and expansion of employee suggestion procedures.

Implementation

Monsanto's involvement in work redesign began in 1973. Monsanto wanted to find different ways for employees to become involved in decisionmaking. This effort was prompted by Monsanto's desire to allow increased worker input as well as by its desire to try innovative ideas in new plants. Activities tried included applying the benefits enjoyed by salaried employees to all employees (e.g., as eliminating time clocks and paying employees for missed days). In the late 1970s many of the existing plants also began looking for and implementing approaches to worker involvement.

In doing so, Monsanto found that, to be effective, support for participative activities must come from the top down. To facilitate top management support, a course was designed for plant managers and potential plant managers to familiarize them with current trends and issues including participative management. In 1980 and 1981 worker involvement was a key focus. Although the focus is now shifting to quality, the emphasis on participative management has continued with 75 percent of the domestic plants using some approach to worker involvement.

The main barriers that needed to be overcome in implementing work improvement efforts at

Monsanto were: (1) being comfortable with the choices of ways for workers to be involved, (2) getting middle management to put time and effort into the project, (3) putting someone in charge who could get it done, and (4) allowing workers and managers to develop ownership of the work improvement effort. Monsanto also found that it is important to get supervisors to look at their role differently, that is to become advisors and resources to their people.

The implementation discussed in the remainder of this section and the specific practices discussed in the next section are related to one nonunion unit within Monsanto.

Work improvement efforts were first initiated by the unit's top manager seeking to instill a quality focus among all employees. A committee consisting of representatives from all sections of the company was formed to select an approach. This unit chose an Employee Quality Involvement Program (EQIP). Before starting EQIP, practices in other companies were examined and a readiness survey was used to determine if the employees were ready to implement worker involvement. First efforts included training supervisors in problem-solving and group leadership. The approach has been to train, go slowly, and give each department considerable control. The EQIP has been threatening for first-line supervisors, because they see it as taking away their control, authority, and position. Thus care is taken that first-line supervisors develop ownership of the EQIP. The pay-offs have been in employee awareness of the need for a quality product and much more communication between people.

Skill Requirements and Training Needs

The skills needed to participate effectively in Monsanto's work improvement efforts include the following:

- Group problem-solving skills
- Flexibility
- Self-direction
- Decision-making/problem-solving skills
- Knowledge of economics as it applies to the company
- Understanding of quality control

Monsanto personnel believe that it would be helpful to have schools teach group problem-solving skills, communication skills, and the concern for and understanding of the importance of business. Vocational education also needs to eliminate the stereotype that implies that only low-achievement students attend vocational education.

SITE VISIT SUMMARY—THE NATIONWIDE INSURANCE ORGANIZATION

Background Information

The Nationwide Insurance organization got its start when the Ohio Farm Bureau Federation decided to offer automobile insurance to its membership. Beginning as a single insurance company in 1926, Nationwide has grown into one of the largest financial service organizations in the United States. Although still primarily a multi-line insurer serving individuals, families, and businesses, Nationwide today is a seven billion dollar international complex of nearly sixty companies, responding to such varied consumer needs as communication and property development.

Nationwide employs over seventeen thousand people within its corporate structure, approximately 15 percent of them serving at the supervisory or management level. Employees, all nonunion, work at the organization's corporate headquarters in Columbus, Ohio, as well as in numerous regional offices located throughout the United States and Puerto Rico. This work force makes use of many of the newest technological developments available in data and word processing.

The Work Climate

Changes in work and the management of work are evolving at Nationwide. Since its inception, Nationwide has placed great emphasis on the welfare and personal growth of its employees. The organization has provided for educational assistance, physical examinations, retirement and insurance benefits, and recognition functions. A physical fitness facility, a meditation room, and a company store have also been provided. Over the years, Nationwide has developed a good reputation as a civic-minded, community-oriented organization.

More recently, the Office of Human Resources has also begun emphasizing such activities as attitude surveys. In addition, custom-designed quality of work life programs with problem-solving sessions have been provided for units requesting assistance. These new tools help employees to better understand employer expectations and work performance standards, as well as stressing that people will be evaluated and rewarded on how well they perform their jobs.

Implementation

These new activities are being implemented on both a voluntary and company policy basis. For example, participating in the quality of work life program is optional. Work units desiring to improve their effectiveness can request the program on their own initiative. In other cases, the Office of Human Resources initiates changes which require the compliance of all supervisors and managers. As an example, changes have made performance evaluations more objective, with employees and management to be rated solely on job-related factors. Over time, if the manner in which performance is evaluated improves, performance also should improve.

Specific Practices

Two specific activities with direct implications for training are the specially designed quality of work life surveys (with subsequent problem-solving sessions) and resources management training.

The QWL surveys and follow-up sessions involve: (1) an entire work unit learning how to interpret the results from its survey that looked at QWL-related factors, and (2) the group working together to solve problems identified by the survey.

Resource Management Training is a pilot effort in which managers explore factors that influence productivity. They develop plans for improvement in their own areas. Next, the group receiving training meets with a support team composed of its own supervisors to implement the plan. This process builds management commitment and enhances participative management.

Skill Requirements and Training Needs

A recent assessment of training needs at Nationwide has indicated managers perceive training is needed in the following areas:

- Computer skills
- Planning skills
- Teamwork development
- Communication skills
- Remedial basics (math, reading, writing)
- Career counseling

When the unit-specific QWL survey and problem-solving session takes place, training is provided on:

- How to interpret the results from the survey (examining the data)
- The group process that will be used
- A problem-solving task to demonstrate a successful group problem-solving activity

To be able to effectively participate in the sessions, the employees need to be able to express themselves, be prepared to participate in simple problem solving and basically be able to use verbal and analytical skills.

Those interviewed at Nationwide felt that the training traditionally provided for managers only (e.g., how to organize, direct, and control activities) would also be useful for all employees.

In general, the consensus was that QWL-related changes imply a need for greater emphasis in the areas of problem-solving, teamwork, communications, human relations, and planning.

REFERENCES

Adler, M. J. *The Paideia Proposal*. New York: Macmillan Publishing Co., 1982.

Babcock, M. R. *Quality Circle Report*. (A report presented at the annual fall conference of the Minnesota Association of Area Vocational-Technical Institutes, 2 November, 1983) St. Paul: Division of Vocational-Technical Education, Minnesota Department of Education, 1983.

Bernstein, P. *Workplace Democratization*. Kent, OH: Kent State University Press, 1976.

Birch, D. L. "Who Create Jobs?" *The Public Interest* 65 (1981): 3-14.

Bracy, G. V. "On the Compelling Need to Go beyond Minimum Competency," *Phi Delta Kappan* 64 (1983): 717-721.

Brodinsky, B. *Building Morale . . . Motivating Staff: Problems and Solutions*. An American Association of School Administrators Critical Issues Report. Sacramento, CA: Education News Service, 1983.

Bronfenbrenner, V. *The Ecology of Human Development*. Cambridge, MA: Harvard University Press, 1979.

Brown, J. "On Teaching Thinking Skills in the Elementary and Middle School." *Phi Delta Kappan* 64 (1983): 709-714.

Burck, C. "What Happens When Workers Manage Themselves." *Fortune*, July 1981, pp. 62-69.

Burck, C. "What's in It for the Unions," *Fortune*, August 1981, pp. 88-92.

Carnoy, M.; Shearer, D.; and Rumberger, R. *A New Social Contract*. New York: Harper and Row, 1983.

Christman, J. E. *Labor and Management: Together*. Productivity Brief 20. Chicago: American Productivity Center, December 1982.

Coleman, J.; Campbell, E. Q.; Hobson, C. J.; McPartland, J.; Mood, A. M.; Weinfeld, F. D.; and York, R. L. *Equality of Educational Opportunity*. Washington, DC: Government Printing Office, 1966.

Congressional Budget Office. *The Productivity Problem: Alternatives for Action*. Washington, DC: Government Printing Office, 1981.

Cooper, M. R.; Morgan, B. S.; Foley, P. M.; and Kaplan, L. B. "Changing Employee Values: Deepening Discontent," *Harvard Business Review* 57 (1979): 117-125.

Cuban, L. "Effective Schools: A Friendly But Cautionary Note," *Phi Delta Kappan* 64 (1983): 695-696.

Davis, L., and Chern, A., (eds.) *The Quality of Working Life* Vols. I and II. New York: The Free Press, 1975.

Davis, L. "Enhancing the Quality of Working Life: Developments in the United States." *International Labour Review* 116 (1977): 53-65.

de Bono, E. "The Direct Teaching of Thinking as a Skill." *Phi Delta Kappan* 64 (1983): 703-708.

Drewes, D. H. *Working for America: A Worker-Centered Approach to Productivity Improvement*. Raleigh, NC: Conserva, Inc., 1982.

Emory, E. F., and Thorsrud, E. *Form and Content in Industrial Democracy: Some Experiences from Norway and Other European Countries*. London: Tavistock Publications, 1969.

Ferguson, M. *The Aquarian Conspiracy: Personal and Social Transformation in the 1980s*. Boston: Houghton Mifflin, 1980.

Fraser, J. L.; Unger, P. V.; and Lewis, M. V. *Robotics and Office Automation: Implications for Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

General Motors. "Statement of General Motors Corporation on Improving the Quality of Work Life." Submitted to the U.S. House of Representatives, Committee on Post Office, and Civil Service Subcommittee on Civil Service 23 June, 1981.

"GM's Quality of Work Life Efforts . . . "An Interview with Howard C. Carlson." *Personnel* (July/August 1978).

Gyllenhammer, P. *People at Work*. Reading, MA: Addison-Wesley Publishing Co., 1977.

Goodman, P. S. *Assessing Organizational Change: The Rushton Quality of Work Experiment*. New York: John Wiley and Sons, 1979.

Grant, V., and Eiden, L. *Digest of Education Statistics*. Washington, DC: Government Printing Office, 1980.

Hackman, J., and Oldham, G. R. *Work Redesign*. Reading, MA: Addison-Wesley Publishing Company, 1980.

Halasz, I., and Behm, K. *Time on Task in Selected Vocational Education Classes*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Herbst, P. G. *Sociotechnical Design*. London: Tavistock Publications, 1974.

Herrick, N. Q. "A Workplace Approach to Educational Reform." October 1983. Unpublished manuscript.

Herrick, N. Q.; Bartholomew, S.; and Brandt, J. "Social Experimentation and the Changing World of Work." In *Developing the Nation's Work Force: Yearbook 5 of the American Vocational Association*, edited by M. Strong. Washington, DC: American Vocational Association, 1975.

Herrick, N. Q. "The Means and End of Work." *Human Relations* 7 (1981): 611-632.

Hewlett Packard. *Statement of Corporate Objectives*. Palo Alto, 1982.

Hewlett Packard. *The HP Way*. Palo Alto, 1980.

Huddleston, K. F. *If Productivity Is the Problem*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Institute for the Future. *Policy Choices in Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

Johnson, D. W.; Maruyama, G.; Johnson, R.; Nelson, D.; and Skon, L. "Effects of Cooperative, Competitive, and Individualistic Goal Structures on Achievement: A Meta-analysis," *Psychological Bulletin* 59 (1981): 47-62.

Judson, A. "The Awkward Truth about Productivity." *Harvard Business Review* 60 (1980): 93-97.

Katzell, R. A., and Guzzo, R. A. "Psychological Approaches to Productivity Improvement," *American Psychologist* 38 (1983): 468-472.

Kuhn, T. I. *The Structure of Scientific Revolutions*. Chicago: The University of Chicago Press, 1962.

Levitan, S. A., and Johnson, C. M. *Second Thoughts on Work*. Kalamazoo, MI: Upjohn Institute for Employment Research, 1982.

Lewis, M. V., and Russell, J. F. *Trends, Events, and Issues Likely to Influence Vocational Education in the 1980s*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1980.

Lewis, M. V.; Fraser, J.; and Unger, P. *Anticipating Future Influences on Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

Mackenzie, D. E. "Research for School Improvement: An Appraisal of Some Recent Trends." *Educational Researcher* 12 (1982): 5-17.

Magaziner, I. C., and Reich, R. B. *Minding America's Business*. New York: Law and Business, Inc./Harcourt, Brace, Jovanovich, 1982.

Marshall, R. "Youth Employability: The Social and Economic Context." In *Job Training for Youth*, edited by R. Taylor, H. Rosen, and F. Pratzner. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Miles, M. B.; Farrar, E.; and Neufeld, B. *Review of Effective Schools Programs: Vol. II. The Extent of Adoption of Effective Schools Programs*. Cambridge, MA: The Huron Institute, 1983.

Mills, T. *Quality of Work Life: What's in a Name?* Detroit: General Motors Corporation, 1978.

Mohrman, A. M., and Lawler, E. E. *The Diffusion of QWL as a Paradigm Shift*. Los Angeles: Center for Effective Organization, Graduate School of Business Administration, University of Southern California, 1981.

Nadler, D. A., and Lawler, E. E. "Quality of Work Life: Perspectives and Directions," *Organizational Dynamics* (Winter 1983).

Naisbitt, J. *Megatrends: Ten New Directions Transforming Our Lives*. New York: Warner Books, 1982.

National Commission on Excellence in Education. *A Nation at Risk: The Imperative for Educational Reform*. Washington, DC: Government Printing Office, 1983.

National Task Force on Education for Economic Growth. *Draft Report and Recommendations*. Denver: Education Commission of the States, 1983.

Neufeld, B.; Farrar, E.; and Miles, M. B. *A Review of Effective Schools Research: The Message for Secondary Schools*. Cambridge, MA: The Huron Institute, 1983.

New York Stock Exchange. *People and Productivity: A Challenge to Corporate America*. New York: NYSE, Office of Economic Research, 1982.

"One Company's Quest for Improved Quality." *Wall Street Journal*, 25 July 1983.

O'Toole, J. "The Reserve Army of the Underemployed." *Change* 7 (1975): 26-63.

O'Toole, J. *Work in America*. Cambridge, MA: The MIT Press, 1973.

Passalaqua, J. "The School Social Organization: Suggestions for Change." *The Generator* (a publication of Division G, the American Educational Research Association) 2, no. 3 (Spring 1981).

Peters, T. J., and Waterman, R. H. *In Search of Excellence: Lessons from America's Best-Run Companies*. New York: Harper and Row, 1982.

Ralph, J. H., and Fennessey, J. "Science or Reform: Some Questions about the Effective Schools Model." *Phi Delta Kappan* 64 (1983): 689-694.

Reich, R. B. "The Next American Frontier," *The Atlantic Monthly*, March 1983, pp. 43-58.

Russell, J. F. "Identifying New and Emerging Occupations," *Journal of Studies in Technical Careers* 6 (1982): 330-346.

Sizer, T. R. "High School Reform: The Need for Engineering." *Phi Delta Kappan* 64 (1983): 679-683.

"Special Report: The New Industrial Relations." *Business Week*, 11 May 1981, pp. 85-98.

Staines, G., and Quinn, R. "American Workers Evaluate the Quality of Their Jobs." *Monthly Labor Review* 102 (1979): 3-12.

Stein, B. A. *Quality of Work Life in Action: Managing for Effectiveness*. New York: American Management Associations, 1983.

Terry, G. *Principles of Management*. Homewood, IL: Richard D. Irwin, Inc., 1968.

Trist, E. *The Evolution of Socio-technical Systems: A Conceptual Framework and an Action Research Program*. Ontario: Ontario Quality of Working Life Centre, Ontario Ministry of Labour, 1981.

Tuthill, D., and Ashton, P. "Improving Educational Research through Development of Educational Paradigms." *Educational Researcher* 12 (1983): 6-14.

Tuttle, T. C. "Organization Productivity: A Challenge for Psychologists." *American Psychologist* 38 (1983): 479-486.

Twentieth Century Fund, Task Force on Federal Elementary and Secondary Education Policy. *Making the Grade*. New York: Author, 1983.

U. S. Department of Labor. *1981 Employment and Training Report of the President*. Washington, DC: Government Printing Office, 1981.

Walton, R. E. "Work Innovations in the United States." *Harvard Business Review* 57 (1979): 88-98.

Wirth, A. G. "New Work and Education: Socio-Technical Work Theory and School Learning." Paper presented at the World Futures Society Conference, Washington, DC, August 11-12, 1983a.

Wirth, A. G. *Productive Work in Industry and Schools: Becoming Persons Again*. Washington, DC: University Press of America, 1983b.

Work in America Institute. *Productivity through Work Innovations*. Elmsford, NY: Pergamon Press, 1982.

Yankelovich, D. *Changing Youth Values in the 1970s*. JDR 3rd Fund, Inc., 1974.

Zager, R., and Rosow, M. P. *The Innovative Organization: Productivity Programs in Action*. Elmsford, NY: Pergamon Press, 1982.